

Assessment of the Medicines Benefit Program of the Ghana National Health Insurance Scheme

December 2015



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December 2015



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About SIAPS

The goal of the Systems for Improved Access to Pharmaceuticals and Services (SIAPS) Program is to assure the availability of quality pharmaceutical products and effective pharmaceutical services to achieve desired health outcomes. Toward this end, the SIAPS result areas include improving governance, building capacity for pharmaceutical management and services, addressing information needed for decision-making in the pharmaceutical sector, strengthening financing strategies and mechanisms to improve access to medicines, and increasing quality pharmaceutical services.

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Key Words

Medicines benefits, universal health coverage

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ACRONYMS

CBHI	community-based health insurance scheme
CHAG	Christian Health Association of Ghana
CHPS	Community-based Health Planning and Services
CPC	Claims Processing Center
DMHIS	District Mutual Health Insurance Schemes
EML	essential medicines list
FFS	fee-for-service
G-DRG	Ghana Diagnostic-Related Groups
GHS	Ghanaian Cedi
GHS	Ghana Health Services
ICD	International Classification of Disease
IU	international unit
MBP	medicines benefits program
MHO	mutual health insurance organization
MoH	Ministry of Health
MSH	Management Sciences for Health
NHIA	National Health Insurance Authority
NHIF	National Health Insurance Fund
NHIL	National Health Insurance Levy
NHIS	National Health Insurance Scheme
NHIML	National Health Insurance Medicines List
NMCP	National Malaria Control Program
PPH	postpartum hemorrhage
PSGH	Pharmaceutical Society of Ghana
RDT	rapid diagnostic test
RMS	regional medical store
SIAPS	Systems for Improved Access to Pharmaceuticals and Services
SSNIT	Social Security and National Insurance Trust
STG	standard treatment guidelines
UHC	universal health coverage
URTI	upper respiratory tract infection
USAID	US Agency for International Development
WHO	World Health Organization

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EXECUTIVE SUMMARY

The Systems for Improved Access to Pharmaceuticals and Services (SIAPS) program, funded by the US Agency for International Development (USAID) and implemented by Management Sciences for Health (MSH), was established in 2011 to increase access to quality pharmaceutical products and services. SIAPS implements a collaborative and comprehensive approach to pharmaceutical system strengthening. The program is committed to enhancing countries' capacity to procure and distribute high-quality pharmaceuticals, and to building stronger systems for governance, human resources, information, service delivery, health financing, and product quality. A key component of the strategies implemented by SIAPS as well as MSH is strengthening the management of medicines benefit programs in countries that are moving towards universal health coverage (UHC). These strategic interventions involve conducting qualitative and quantitative assessments of the health insurance and pharmaceutical sectors and formulating recommendations for implementation that are contextually specific to country

The National Health Insurance Scheme (NHIS) has become an integral part of Ghana's strategy to move towards UHC. It is financed through a mix of domestic funds and international development assistance. USAID, along with other development partners and donors, is supporting the Government of Ghana to identify and address gaps in the achievement of UHC. USAID supports the NHIS through several technical assistance programs that focus on the goals set out in Ghana's development program for the health sector.

Since its launch in 2003, the NHIS has been struggling to overcome and manage shortcomings in its medicines benefit program (MBP), which is under the overall operation of the National Health Insurance Authority (NHIA). Examples of identified deficiencies that need to be addressed include: frequency of the update of selected medicines; inadequacy of prices quoted by the NHIS for reimbursement; increased stock-outs of essential medicines at health facilities; a growing number of patients who occasionally have to pay out of pocket for medicines; and the rising value of medicines claims as a proportion of total claims.

To systematically address challenges in the NHIS' MBP, it was important to undertake an assessment of its current management system to identify the causes, extent, and nature of the problems and to suggest remedial actions. To this end, with funding from USAID and in collaboration with key stakeholders, SIAPS conducted an assessment of the NHIS' MBP. The findings and recommendations of the assessment will be used to guide the NHIA on strategies to improve the design of the MBP, and to strengthen medicines claims management, pricing, and reimbursement processes. This intervention was also done with the aim of enhancing the availability of medicines and acceptability of the medicines program by all stakeholders.

The objectives of the assessment were to:

- Document the management of the MBP by assessing the NHIA claims processes and other systems and procedures instituted by the NHIA regarding pharmaceuticals policies and management.

- Identify key factors that are currently adversely affecting the timely reimbursement of pharmaceuticals by the NHIA.
- Examine policies, laws, and regulations that impact the implementation of the NHIS medicines benefit package.
- Identify practices and behaviors of stakeholders (providers, regulators, prescribers, and dispensers) and how they impact NHIA management of the MBP.
- In collaboration with key stakeholders, formulate actionable recommendations for creating efficiencies in claims processing, setting prices, and reimbursement processes for pharmaceuticals.

The assessment was undertaken March to June 2015. It involved a review of the literature on the NHIS and medicines benefits in Ghana, and a review of examples of MBP best practices in other African countries. This was followed by an in-country assessment, which included interviews with core NHIA staff. The following questions were addressed through the desk review of available materials and interviews with the NHIA team:

- What is the current political, legal, and regulatory environment for management of the MBP in Ghana?
- Which laws guide prescribing, dispensing, and the pricing of medicines?
- What are the governance and administrative structures, infrastructure, human resources, and information technology capacities at the NHIA for medicines claims processing?
- What are the implications of the current delays in reimbursement processes for providers, payers, and patients?
- What are the implications of current MBP practices on the availability of medicines for NHIS clients?

Although further investigations and costing of recommended options are required, the assessment provides broad directions for action. The following recommendations are offered:

- ***Need for increased coordination and communication with and among stakeholders.*** There is need for a structured mechanism for dialogue and two-way feedback between the NHIA and key stakeholders. This could be achieved, for example, through the establishment of a *Pharmaceutical Pricing and Negotiations Committee or Working Group*, which would serve as a platform to negotiate medicine prices, update stakeholders on member eligibility, and schedules for claim payments.
- ***Improve NHIS payments to providers for services rendered.*** Regular and timely release of NHIA funding by the Ministry of Finance will be key to sustaining health service provision to NHIS subscribers, in general, and specifically for

the MBP. This should start with the reimbursement of current funds owed to facilities. It is strongly recommended that the NHIA develop a plan for payment to facilities; it should be designed to resolve the debt, either in its totality or partially over a set period of time. While the ultimate goal will be the full elimination of debt, it is necessary to make a gesture of good faith and restore provider confidence in the NHIA by making small payments in the interim.

- **Reforms needed on health and medicines benefit package.** There is a need to set limits on the use of services over a defined period. Additional tools need to be introduced to cap the use of health services and medicines even under the current capitation pilots.
- **Conduct a detailed cost analysis of the operations of pharmacies, wholesalers, and clinic dispensaries** to enable the setting of economically sustainable reimbursement rates for private health sector service providers, pharmacies, and independent chains. The public sector receives subsidies for its operations, but gets reimbursed at the same prices for medicines as the private sector.
- **Analyze options for subscriber cost sharing.** Conduct an ability to or willingness to pay options analysis to determine acceptable levels of subscriber cost sharing for medicines. A well-designed copayment system, with zero co-pays for generics and tiered payments for branded generics and innovator products, could address stakeholder concerns, especially those of the formal and private sector. Formalizing copayments may be one way to address the increasing number of illegal payments at the health facility level and also curb the overuse of services.
- **Redesign the reimbursement and price setting model for medicines to factor in inflation and foreign exchange rate fluctuations.** The analysis to support this work would include options for the introduction of dispensing fees, a mechanism that pays dispensers for services as opposed to paying for supply chain mark ups on medicines.
- **Strengthen human resource capacity.** The NHIA and the pharmaceutical system need to build staff capacity as well as recruit staff with appropriate backgrounds and capacity in disciplines, such as health and pharmacoconomics. The NHIA needs to build its capacity to analyze large medicines use databases and be able to link medicines use data with expected health outcomes.
- **Media strategy.** The NHIA has been discussed by several parties in the media, increasingly leading to an erosion in trust by the public. The recent public perception of the NHIA has been largely based on the outstanding debts, lack of reliable information about the NHIS, and what appears to be an inability to pay providers for debts accrued. In the interviews conducted during this assessment, stakeholder responses were primarily negative, with recurring questions being about when payments would be received and why there were delays. It is imperative to reassure providers and patients of the intent and ability of the NHIA to settle outstanding debts and ensure continued quality of care for all NHIS beneficiaries. This can be achieved through a consistent and intentional media

strategy to keep stakeholders informed of the proposed payment interventions and timelines for payments.

- ***Service Delivery: separation of pharmaceutical and health services.*** Medicines sales in public and private health facilities are seen as a source of internally generated income by prescribers and health facilities. This could provide incentives for increased prices and “top up” to patients. To eliminate these incentives, several countries, including Namibia and Korea, are at different stages of successfully implementing the separation of these services. A number of countries have also looked at options to reduce dependency on the use of margins through the introduction of a single exit price mechanism and dispensing fees.
- ***Introduce an electronic pharmacy benefits management platform*** to improve the availability of information for decision making through prospective and/or concurrent medicines use reviews. MBPs that do not rigorously review medicines use are most certainly losing significant resources. Because data for medicines use reviews can be hard to capture without the aid of a strong information technology system, an electronic system, which has a pharmacy benefits management capability, should be able to routinely document information about itemized medicine claims (including the per member per month cost of medicine, per member per month cost per therapeutic class of medicine, name, dosage form, strength, prescribed regimen, total number of dispensed doses, dispensing price, generic/brand etc.). A holistic but phased approach to rolling out an electronic pharmacy benefits management platform is recommended. It starts with the requirement for installation of electronic point of sales equipment at all dispensing units that are credentialed to make medicine claims to the NHIA. Such a system should provide dispensers with the opportunity to review patient medication regimens, patient and prescriber eligibility, therapeutic duplications, and adherence to standard treatment guidelines (STG) before dispensing. Ultimately, the technology platform should provide a link between dispensing units and the claims processing center or through a third party organization that can adjudicate medicines claims.

INTRODUCTION

Ghana's Progress Towards Universal Health Coverage

In its 2008 World Health Report, the World Health Organization (WHO) defined universal health coverage (UHC) as the achievement of access for all people to key promotive, preventive, curative, and rehabilitative health interventions at an affordable cost, thereby achieving equity in access.¹ The ultimate goal of UHC is to ensure that all people obtain needed health services and essential health technologies without suffering financial hardship when paying for them.

In most low- and middle-income countries, due to weak public sector service delivery systems, the private sector has become an important source of health services and medicines, requiring people to pay out of pocket to get the services they need. Many times this leads people to either not use services when they need them or to be at risk of acquiring products and services of questionable quality. With the determination to truly achieve UHC, Ghana has been undergoing transformational changes in its health care financing over the past decades in an effort to ensure that everyone gets the desired health services and medicines. Among other developments, the National Health Insurance Scheme (NHIS), established by the National Health Insurance Act 650, replaced the existing user fees (also called the “cash and carry” system). The primary objective of the NHIS is to ensure financial access to basic health care services for all residents of Ghana without having to pay out of pocket at the point of service delivery.

The NHIS has become an integral part of Ghana's strategy to move towards UHC. It is financed through a mix of domestic funds and international development assistance. The US Agency for International Development (USAID), along with other development partners and donors, is supporting the Government of Ghana to identify and address gaps in the achievement of UHC. USAID supports the NHIS through several technical assistance programs that focus on the goals set out in Ghana's development program for the health sector.

Since its launch in 2003, the NHIS has been struggling to overcome and manage shortcomings in its medicines benefit program (MBP), which is under the overall operation of the National Health Insurance Authority (NHIA). Examples of identified deficiencies that need to be addressed include: frequency of the update of selected medicines; inadequacy of prices quoted by the NHIS for reimbursement; increased stock-outs of essential medicines at health facilities; a growing number of patients who occasionally have to pay out of pocket for medicines; and the rising value of medicines claims as a proportion of total claims.

To systematically address challenges in the NHIS' MBP, it was important to undertake an assessment of the current management system of the MBP to identify the causes, extent, and nature of the problems and to suggest remedial actions. To this end, with funding from USAID and in collaboration with key stakeholders, the Systems for Improved Access to Pharmaceuticals and Services (SIAPS) program implemented by Management Sciences for Health (MSH) conducted a qualitative and quantitative assessment of the NHIS' MBP. The findings and recommendations of the assessment were used to guide the NHIA on actionable strategies to improve the design of the MBP, and to strengthen medicines claims management, pricing, and

reimbursement processes. This was done with the aim of enhancing the availability of medicines and acceptability of the medicines program by all stakeholders.

Previous Medicines Benefits Assessments and Recommendations

Previous reviews of MBPs include the Policy Note ² prepared by the World Bank on the Ghanaian pharmaceutical sector and the impact of the NHIS. Key recommendations from this review included a call for the NHIS and the Ministry of Health (MoH) to improve access to medicines for insured patients by:

- Addressing the increasing risk of non-rational prescribing and fraud, which has led to a growing medicines bill that threatens the financial sustainability of the NHIS.
- Using the resources and purchasing power of the NHIS to influence provider behavior as well as the pharmaceutical market in terms of quality and pricing.
- Conducting a policy options analysis for efficient regulatory systems strengthening with a focus on high-risk products.

A 2013 WHO review of Ghana’s National Medicine Policy (2004-2013)³ indicated that due to the decentralization of procurement, with the attendant loss of economies of scale and incomplete quality assurance, the pharmaceutical sector was still seen as passing its inefficiencies and costs on to the NHIS. The report also mentioned that this situation was worsened by insufficient critical analysis of claims by the NHIS, which allows for unbridled overprescribing and high medicine costs.

Several other anecdotal references about the challenges of medicines benefits management in Ghana and associated recommendations have been made to the NHIS and to the pharmaceutical sector in Ghana.

Problem Statement

The NHIA does not directly procure pharmaceuticals. However, through its reimbursement of pharmaceutical claims to accredited facilities for providing medicines to its beneficiaries, NHIA is indirectly the biggest “payer” of costs of pharmaceuticals in the Ghanaian pharmaceutical sector. There have been recent concerns regarding the increasing proportion of medicines costs as a percentage of total claims. There have also been several concerns expressed about delays in reimbursements to providers, a low NHIA reimbursement price, unbridled poly-prescription, and stock-outs of some essential medicines. Collectively, this has led to increased out-of-pocket payments for medicines at the points of service delivery. Recognizing that access to medicines—a key pillar of Ghana’s UHC program—is challenged, the NHIA and USAID requested that SIAPS assess the NHIS’ MBP and make recommendations to improve the efficiency of the overall program, with a special emphasis on enhancing the sustainability of access to medicines.

Objectives

SIAPS undertook the assessment activities to:

- Document the management of the MBP by assessing the NHIA claims processes and other systems and procedures instituted by the NHIA regarding pharmaceuticals policies and management.
- Identify key factors that are currently adversely affecting the timely reimbursement of pharmaceuticals by the NHIA.
- Examine policies, laws, and regulations that impact the implementation of the NHIS medicines benefit package.
- Identify practices and behaviors of stakeholders (providers, regulators, prescribers, and dispensers) and how they impact NHIA management of the MBP.
- In collaboration with key stakeholders, formulate actionable recommendations for creating efficiencies in claims processing, setting prices, and reimbursement processes for pharmaceuticals.

Methodology

The SIAPS team conducted the assessment in collaboration with the operations department of the NHIA. It hired a team of local data entry clerks to support the capture of data. Data analysis was supported by SIAPS' partner, the Logistics Management Institute.

The following specific activities were conducted:

Desk Review of Key Documents

The team examined the following types of key documents: NHIA annual operations and previous assessments reports; technical documents related to pharmaceutical benefit management; accreditation of facilities; current claims processing and reimbursement; country policies and guidelines on pharmaceuticals; and published literature on the NHIS.

Field Visits for Interviews and Consultative Meetings with Key Stakeholders

Meetings and interviews were conducted with the following key stakeholders:

- Donors (USAID)
- MoH departments that are involved in medicines management and health programs, including: National Malaria Control Program, Maternal and Child Health Program,

National Drug Program, Chief Pharmacist, and Ghanaian Medical and Dental Associations.

- NHIA management; NHIA Claims Processing Centers (CPC).
- Other stakeholders who influence medicines policy development and implementation: Pharmaceutical Society of Ghana; Ghana Chamber of Pharmacy; Food and Drugs Authority; Association of Representatives of Ethical Pharmaceutical Industries; officials and managers of regional medical stores (RMS); and pharmaceutical wholesalers and retailers to assess claims submissions processes to the NHIA and to understand challenges faced by them due to the delay in reimbursements.
- Visits to health facilities, including teaching hospitals, regional and districts hospitals, health centers, and Community-based Health Planning and Services (CHPS) compounds, to obtain information on prescribing and dispensing practices, patient cost pricing and its impact on patient cost sharing of select malaria, and maternal and child health products, and the general claim submissions processes that facilities use.
- Review and analyze the paper and electronic medicines claims data from the central and regional CPCs.

Data Collection and Assessment

The assessment team used three tools:

- MSH's Medicines Benefit Management Assessment Tool for Low-and Middle Income Countries. This tool helped to collect data on: the scope of medicines benefits; the design of the MBP; the financing, political, legal, and regulatory landscape; and the pharmaceutical supply chain.
- Health Facility Prescribing and Dispensing Assessment Tool. This was used to obtain a retrospective recording and review of the actual prescriptions of both NHIS and non-NHIS subscribers for specific disease conditions (malaria, maternal health services, and upper respiratory tract infections) and compare the medicines prescription and adherence to the National Standard Treatment Guidelines. The data were collected from claims submitted over a period of three months, January to March 2015.
- Review of the paper claims submitted from July, September, and November 2014, and January 2015 using Microsoft Excel.
- The analysis of paper claims and electronic data was conducted by SIAPS' partner, Logistics Management Institute.

Overview of the SIAPS Approach to Medicines Benefits Assessments

As highlighted in the previous section, the NHIS has been facing numerous challenges in its efforts to have a well-established and functional MBP that not only ensures the availability of essential medicines to clients at accredited provider facilities but also ensures the timely reimbursement of claims.

The SIAPS approach to assessing a MBP is to identify the existing laws, policies, and governance arrangements within which the MBP operates, and evaluate the impact of these laws and policies on the operations of the MBP. This requires documenting the factors that influence decision making around the selection and pricing of medicines, reviewing the status of implementation, and making recommendations to improve the infrastructure, information technology, and human resource capabilities of the MBP. The assessment began in early March 2015 with a review of the literature on the NHIS and medicines benefits in Ghana and a review of examples of MBP best practices in other African countries. This was followed by an in-country assessment at the end of March 2015, which included interviews with core NHIA staff. In consultation with the NHIA, the assessment tools were contextualized for Ghana. In-country data collection began on April 4, and was completed on April 30, 2015. Additional data to address gaps were sent by NHIA staff and local data entry clerks by June 30, 2015.

The following questions were addressed through the desk review and interviews with the NHIA team:

- What is the current political, legal, and regulatory environment for management of the MBP in Ghana?
- Which national laws guide the functions for health insurance and the MBP?
- Which laws guide prescribing and dispensing of medicines, and the pricing of medicines?
- What are the governance and administrative structures, infrastructure, human resource and information technology capacities at the NHIA for medicines claims processing?
- What are the implications of the current delays in reimbursement processes for providers, payers, and patients?
- What are the implications of the current MBP practices on the availability of medicines for NHIS clients?

At the request of the NHIA, following completion of the qualitative and quantitative data analysis, SIAPS developed a follow-up action plan. The draft activity plan was shared with USAID.

Sampling

- Geographic areas for the assessment: Out of the 10 regions where the NHIA operates, three regions (Greater Accra, Ashanti, and Central) were selected.
- Selection criteria: The selection criteria included:
 - socio-economic profile of the area
 - proportion of urban and rural locations/populations
 - agro-ecological zone
 - proximity to any of the four NHIA CPCs
- Selection of facilities: In each of the three regions, up to five facilities (three urban and two rural) were chosen based on the level of medicine claims filed in last three months, according to NHIA records. The level of medicines claims was defined as high, medium, or low based on the claims volume in terms of the number and value (in Ghana Cedi [GHS]) processed per facility by the NHIA in each region. Teaching hospitals and CHPS compounds visited were purposively selected due to the fact that there are very few or none in all the regions selected (table 1).

Table 1. Summary of Sites Selected for the Assessment

Region	Claims Processing Center	Teaching Hospital	Regional or District Hospital	CHPS Compound	Regional Medical Stores	Private Clinics, Maternity Homes, and Mission Hospitals	Wholesaler	Retail Pharmacies	Total
Greater Accra	1	1	3		1	3	2	3	14
Central	1		2			2		1	6
Ashanti	1		2	1	1	3	1	2	11
Total	3	1	7	1	2	8	3	6	31

Limitations of the Assessment

The assessment aimed to provide an overview of the management of the NHIS' MBP, its interface with the pharmaceutical sector, and policy analysis leading to the design of appropriate interventions in response to findings. It was not intended to provide a detailed analysis of the pharmaceutical sector. This document provides a snapshot of the MBP situation under the NHIS. During the assessment, neither direct communication with NHIS beneficiaries/patients nor client interviews at the household level were conducted nor was the national procurement system analyzed. The review of patient claim forms and stakeholder interviews provided general

information on the influence that clients and the procurement system had on the supply and demand for pharmaceuticals.

The main difficulties encountered during field work were:

- A few public health facilities had not received letters from the NHIA in advance explaining the rationale for the assessment and the role of SIAPS, which made it difficult to gather information and data in a timely manner. This issue occurred more frequently during visits to private facilities and when the owners were not present at the time of data collection. The problem was overcome through personal contacts by the study team and NHIA.
- NHIA could not provide data on medicines claimed for malaria, upper respiratory tract infection (URTI), and maternal health from the same facilities that the SIAPS team visited, as originally envisaged, making triangulation of findings difficult.
- Overall, the quality of data was poor, making data analysis challenging. The following problems were identified with NHIS data:
 - Incomplete medicine names in data sets.
 - International Classification of Disease (ICD)-10 codes were mixed with the medicine code and the disease names.
 - Age range data were frequently missing, making it difficult to assess age-related adherence to STGs.
 - Medicine codes in the claims data did not match the NHIA medicines master list and codes.
 - Several medicines payments were without the corresponding ICD-10 or Ghana Diagnostic-Related Groups (G-DRG) code.
 - NHIS reports that generated data captured from the paper claims did not have detailed information on the type, form, and quantity of medicines billed to beneficiaries.

HEALTH CARE FINANCING IN GHANA

Ghana has been undergoing transformational changes in its health care financing over the past decades. The major sources of financing have been taxes, donor support, and user fees. With an initial net budget surplus after independence, the government of the first Republic of Ghana (1957-1969) tried to achieve universal access to comprehensive health services. Ghana's financing approach became increasingly difficult to maintain as the country experienced budget deficits and increasing political instability. Continued declines in government spending on health through the 1970s and 1980s led to shortages in medicines and supplies and a deteriorating quality of care. In 1983, the existing user fee regime for public health care services was expanded. The expanded user fee system, popularly known as "cash and carry," with the accompanying desire by health facilities to generate funds internally, improved cash flow for some facilities. However, because it was poorly regulated and inconsistently implemented, it led to worsening access to care for the poor. In response to the worsening access to care and increased shortages in medicines, the Catholic diocese in the Sunyani district of the Brong Ahafo region of Ghana piloted and implemented the Nkoranza Community Health Insurance Scheme at St. Theresa's Hospital between 1989 and 1992. This health facility's insurance program marked the beginning of community-based health insurance schemes (CBHI) in Ghana. The Nkoranza scheme's growth created an enabling and inspirational platform for government-level planning for health insurance and the subsequent creation of other mutual health insurance organizations (MHO) by other faith-based groups and health providers. Despite proliferating to more than 140 schemes by 2002 and the formation of the Network of Mutual Health Organizations of Ghana, the MHOs covered only about 1-2% of Ghana's 20 million population.⁴ In light of the unpopularity of the "cash and carry" or user fee system and the inability of the CBHIs to cover a wide range of services and people, Ghana declared its intention to abolish the user fee system in 2000.⁵ The country planned to introduce a Universal Health Program to ensure access to basic health services for all residents of Ghana without any out-of-pocket payments or user fees. In 2003, using the concepts and features of the community MHO (namely social solidarity and community ownership), but being cognizant of the need to increase population coverage, the Government of Ghana passed the National Health Insurance Act of 2003 (Act 650) to create the NHIS.

Ghana's National Health Insurance Scheme

Ghana's NHIS, which was promulgated by the 2003 National Health Insurance Act 650,⁶ enabled the creation of the NHIA and the National Health Insurance Fund (NHIF). Under the NHIS Act 650, the NHIS was decentralized, consisting of 138 district and zonal schemes with separate governing boards chosen by community members and district assemblies. The NHIA is the statutory body created to administer the national health insurance scheme. The NHIS Act 650, which governed the establishment of the NHIS, has subsequently been replaced by a new Act 852,⁷ which brought with it significant changes in the structure of the NHIA and NHIF.

Policy, Governance, and Funding Structure of the NHIS

The NHIF received funds from: the National Health Insurance Levy (NHIL; 2.5% of value-added tax [VAT] on all goods and services); 2.5% of contributions from the formal sector Social Security Scheme; Parliament-approved funds and beneficiary premiums; NHIA investments; and monies accruing from the National Insurance Commission as dictated by the Insurance Act 198 of 2006 (figure 1).⁸

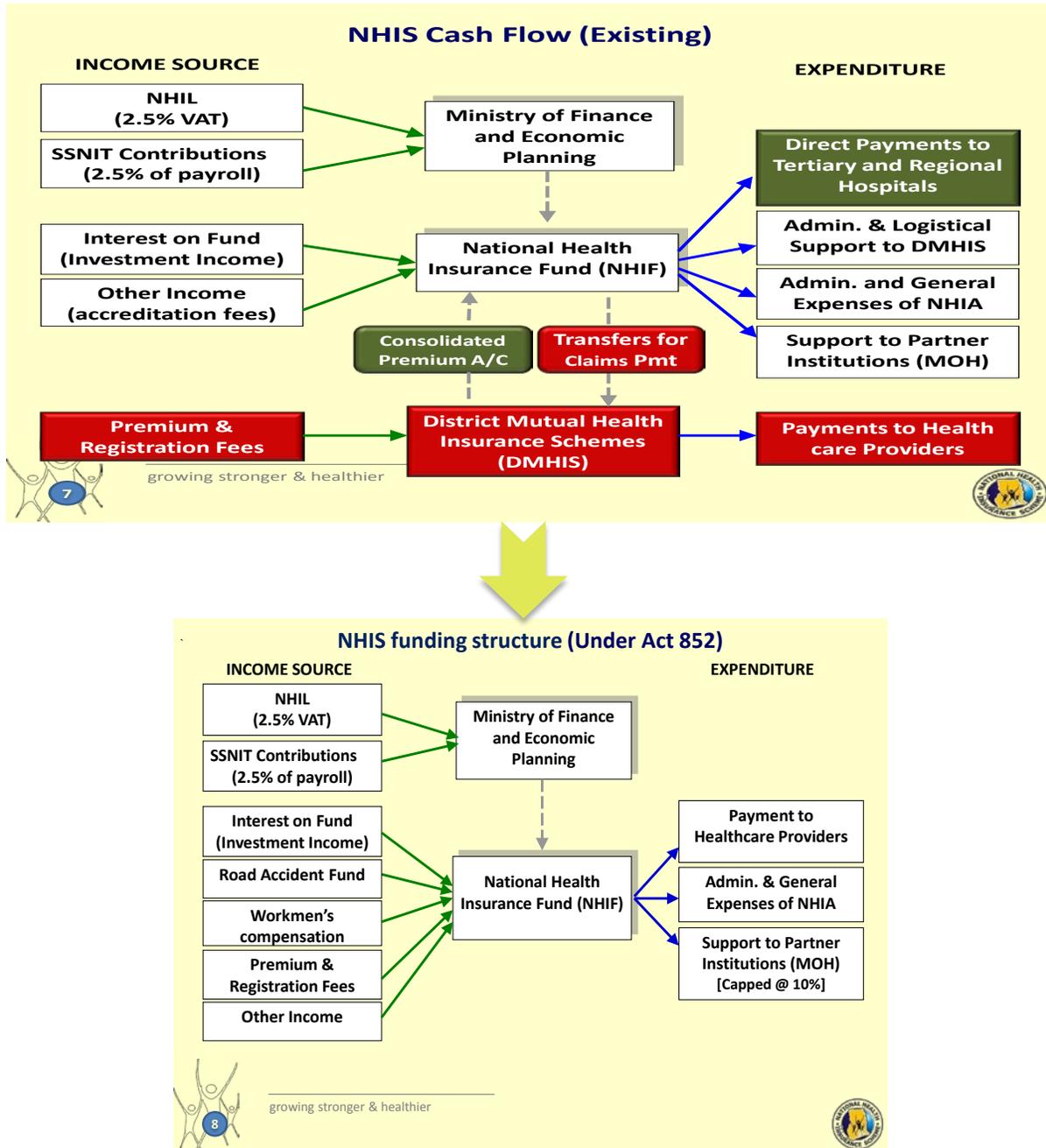


Figure 1. NHIS funding and governance structure before (top) and after (bottom) Act 852

Act 852 introduced new income sources, such as the Road Accident Fund and Workmen's Compensation. All premium and registration fees were now paid directly to the NHIF and not to the District Mutual Health Insurance Schemes (DMHIS), which were phased out under Act 852. All payments to health providers were centralized. Under Act 852, DMHIS paid health providers directly. Act 852 introduced expenditures caps from the NHIF and provided relief for strengthening the Ministry of Finance and Economic Planning and for Parliamentary oversight.

NHIS Health Benefits Package

The NHIS is anecdotally said to cover over 95% of all disease conditions in Ghana. The health benefits package covers in- and outpatient curative services, ranging from the primary to tertiary level of care for all enrolled members, without copayments at points of use and without limits on usage. By December 2014, the NHIS covered 10.5 million of Ghana's 23.9 million population. All pregnant women can enroll in NHIS by paying premiums and can access all antenatal and post-natal services. The benefits package excludes cancer treatments (other than breast and cervical cancer), organ transplants, dialysis, non-vital services, such as cosmetic surgery and antiretroviral medicines (which are heavily subsidized by the separate National AIDS Program).

Medicines Benefits Program

In collaboration with the MoH, medicines to be reimbursed by the NHIS are selected and documented on a list known as the National Health Insurance Medicines List (NHIML). The NHIML is a subset of Ghana's essential medicines list (EML). It provides the type, form, and prices of medicines covered by the NHIS. As of the end of December 2014, the NHIML contained 204 of the 369 (55%) distinct medicines, and 522 of the 730 formulations (72%) listed on Ghana's EML. NHIS' guidelines are to reimburse the cost of medicines on the NHIML that are prescribed according to the Ghanaian STGs.

Purchasing and Payment Mechanisms

The NHIS is a single payer insurance program. Purchasing of health services within the NHIS is mainly through diagnosis-related groupings. However, a capitation system of payment that was piloted in the Ashanti region is now being rolled out in three of the ten regions of Ghana. Provider reimbursement and NHIS payment mechanisms for medicines are done strictly through a fee-for-service (FFS) system in all ten regions.

NHIA Claims Administration Processes

The NHIA has four regional CPCs located in Accra, Kumasi, Cape Coast, and Tamale. Claims for reimbursement for health services, lab services, and medicines are submitted in paper form to the corresponding regional CPC. An e-claims system, which gives facilities the option of submitting claims in an electronic format, has been rolled out to a small percentage of facilities following training and configuration of software (68 out of 3,500 facilities, less than 5%). The majority of facilities submit hard copies of their claims, in addition to summary sheets on a "pen drive" (USB stick) to the CPCs.

Once claims are received at a CPC, there is a “*fulfillment*” process—a terminology used to describe the process during which the physical count of claims recorded as submitted by the facility are reconciled with the actual number received by the CPC officers. Ideally, the fulfillment is done in the presence of the facility representative submitting the claim forms. In the event that claims submitted are too many, the reconciliation is done in the absence of the facility representative. Discrepancies, if any, are communicated later to the health facility or pharmacy. If there are no discrepancies or if the facility has been notified of existing discrepancies, a report on the physical count and a total claims report are generated.

Actual *vetting* of claims follows fulfillment. The “vetting” process involves a clinical review of submitted claims and adjustments of claim values based on discrepancies or non-adherence to treatment guidelines, using a checklist available to vetting officers. Clinical reviews at CPCs are not done routinely by clinicians. Only disputed cases are referred to clinicians and pharmacists for vetting.

Adjudication: After vetting, a secondary review of queried claims is performed to ensure accuracy in the adjudication process. Once the vetting and secondary reviews are completed, the data from the claims are entered into the system and a report is generated for review and reconciliation by the accounts units, the CPC Manager, and subsequently, the Director of Claims.

Payment mechanism: Once approved, the report is sent to the Directorate of Finance, which then issues the reimbursement payment to the facilities (figure 2).

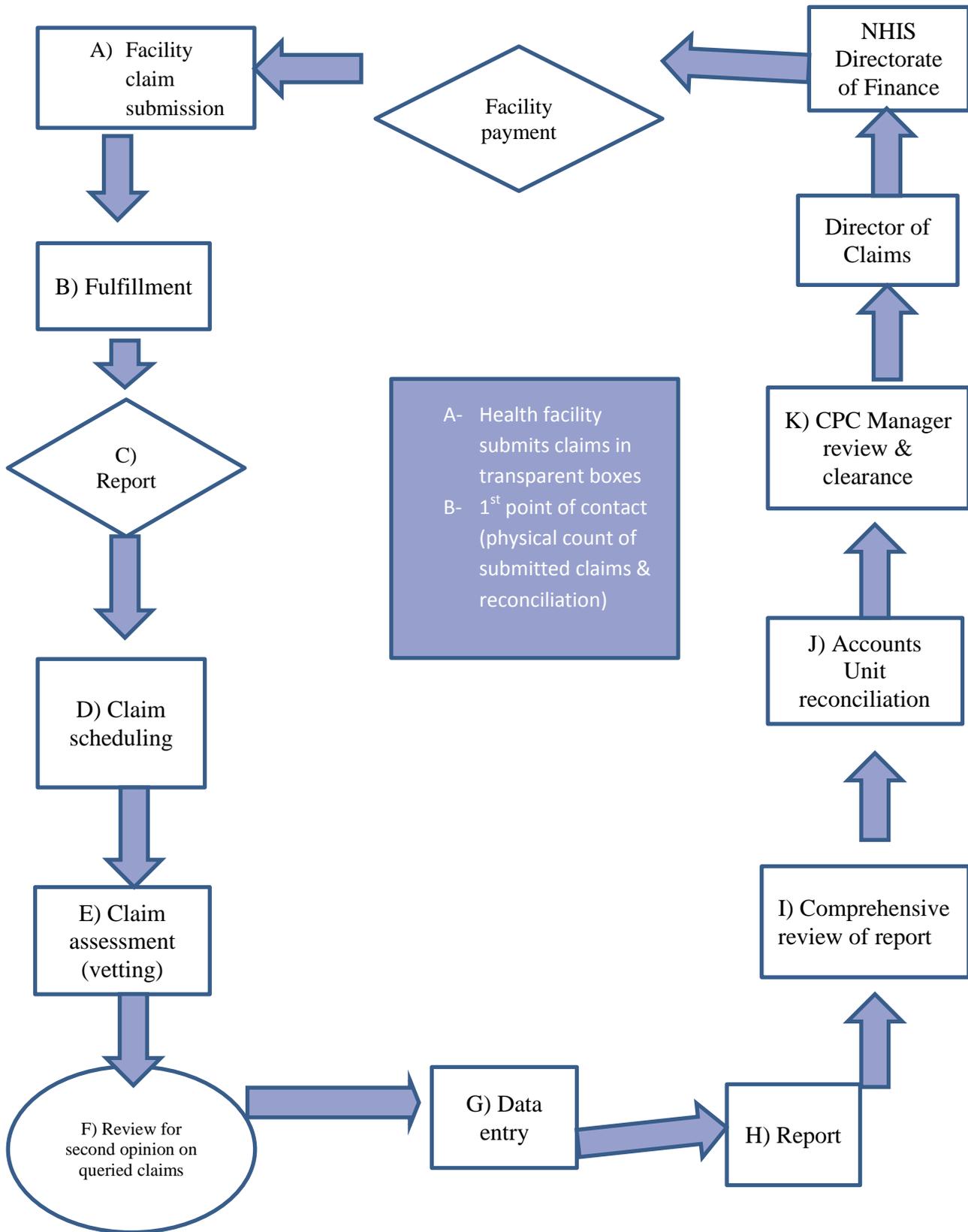


Figure 2: Ghana NHIS claims processing operational workflow

Membership

The NHIS has grown over the years, from an initial membership of 1.5 million subscribers in 2003 to an active subscriber base of 10.5 million as of December 2014. Figure 3 shows the distribution of subscribers. Social Security and National Insurance Trust (SSNIT) contributors account for about 3.5% of members. A little over thirty percent (30.7%) of subscribers are informal sector workers who are required to pay a premium fee, ranging from GHS7.2 to GHS48 per head.⁹ However, pregnant women, individuals under age 18 and over 70, SSNIT pensioners, and indigents, who account for a total of about 65% of the members, are exempt from any form of premium payments.

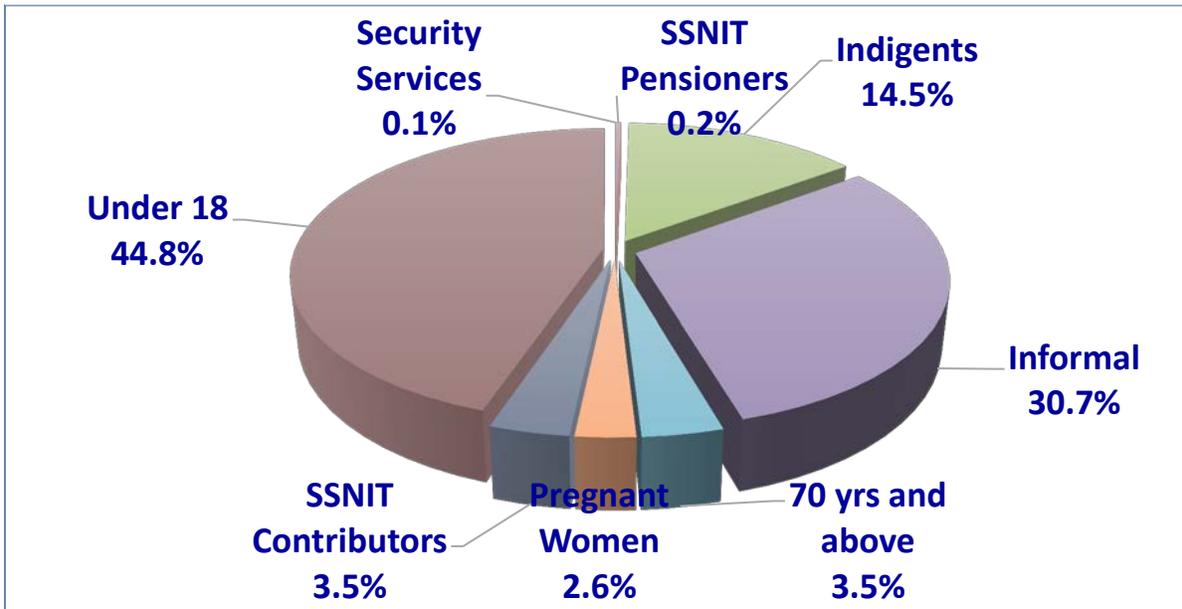


Figure 3. Distribution of subscribers

Credentialing of NHIS Providers

NHIA credentials both private and public sector health facilities to provide services to registered members of the scheme. These facilities must also be licensed by their respective professional and practices bodies.

a) **Process for credentialing pharmacies and health facilities:** Any entity interested in applying for registration with the NHIA must fulfill certain criteria to be considered for credentialing, including the following:

- Accreditation from an individual regulatory body: Ghana Health Services (GHS), Health Professional Regulatory Authority, Pharmacy Council.
- Must be operational for at least six months prior to the application for credentialing.
- In good standing for service provision.

- Must provide information on staffing, physical infrastructure, and services provided.
- Must accept the NHIA's quality assurance standards and the payment modalities.
- Must agree to allow on-site inspections of the facility by the NHIA or any person authorized by the NHIA and undertake any corrective measures identified by the NHIA.

b) Credentialing process: Once the application is received, along with the required documentation and fees, the NHIA verifies the submitted documents and sends the credentialing tool and manuals to the facility. A detailed assessment of the facility is then undertaken by the staff of the NHIA's Quality Assurance department and a report is submitted to NHIA management for decision making. The applicant is then informed of the final decision by NHIA management.

THE PHARMACEUTICAL SECTOR IN GHANA

Ghana has a vibrant and growing public and private pharmaceutical sector. Having grown from approximately USD \$90 million in 2002¹⁰ to US\$300 million in terms of sales for both locally and imported pharmaceuticals in 2008,¹¹ the market is reported to be valued at approximately USD \$500 million in 2014. The Government of Ghana is a major player, both as a regulator of the market and as a buyer involved directly in the wholesale purchase and supply of medicines and health care services.¹²

The Ghana National Drug Policy defines the policy and legal framework governing the sector. On the regulatory side, the Food and Drugs Board, a separate entity under the MoH, regulates the use, advertising, manufacturing, importation, export, and distribution of medicines in the country.^{13,14} Pharmacy practice is regulated by the Pharmacy Council, with ethical standards monitoring by the Pharmaceutical Society of Ghana (PSGH).

Ghana's pharmaceutical sector is heavily dependent on importation and has a low capacity for local manufacturing. The current number of pharmaceutical manufacturers, including those also engaged in importation, wholesale, or other areas of the supply chain, is about fifty.¹⁵ To encourage domestic production, the MoH has identified a list of generic products for which importation is prohibited.¹⁶ Despite the enabling environment for local medicine production, Ghana's pharmaceutical industry is driven largely by imported medicines. (Interviewees indicated that about 70% of the market was for imported pharmaceuticals.) The supply chain for medicines in the public sector is largely decentralized. Following the recent destruction of the Central Medical Stores by fire, the RMS and health facilities procure medicines based on their needs. The mission sub-sector consists of the Christian Health Association of Ghana (CHAG), Ahmadiya Health Services, and a number of religious health services that are central suppliers. The Pharmacy Council and Food and Drugs Board report that the total number of businesses involved in active pharmaceutical importation and distribution is between 200 and 300.

Pharmaceutical wholesalers supply medicines and other pharmaceutical products to over 1,500 registered pharmacies and over 8,000 licensed chemical sellers, which are outlets allowed to dispense over-the-counter medicines.¹⁷

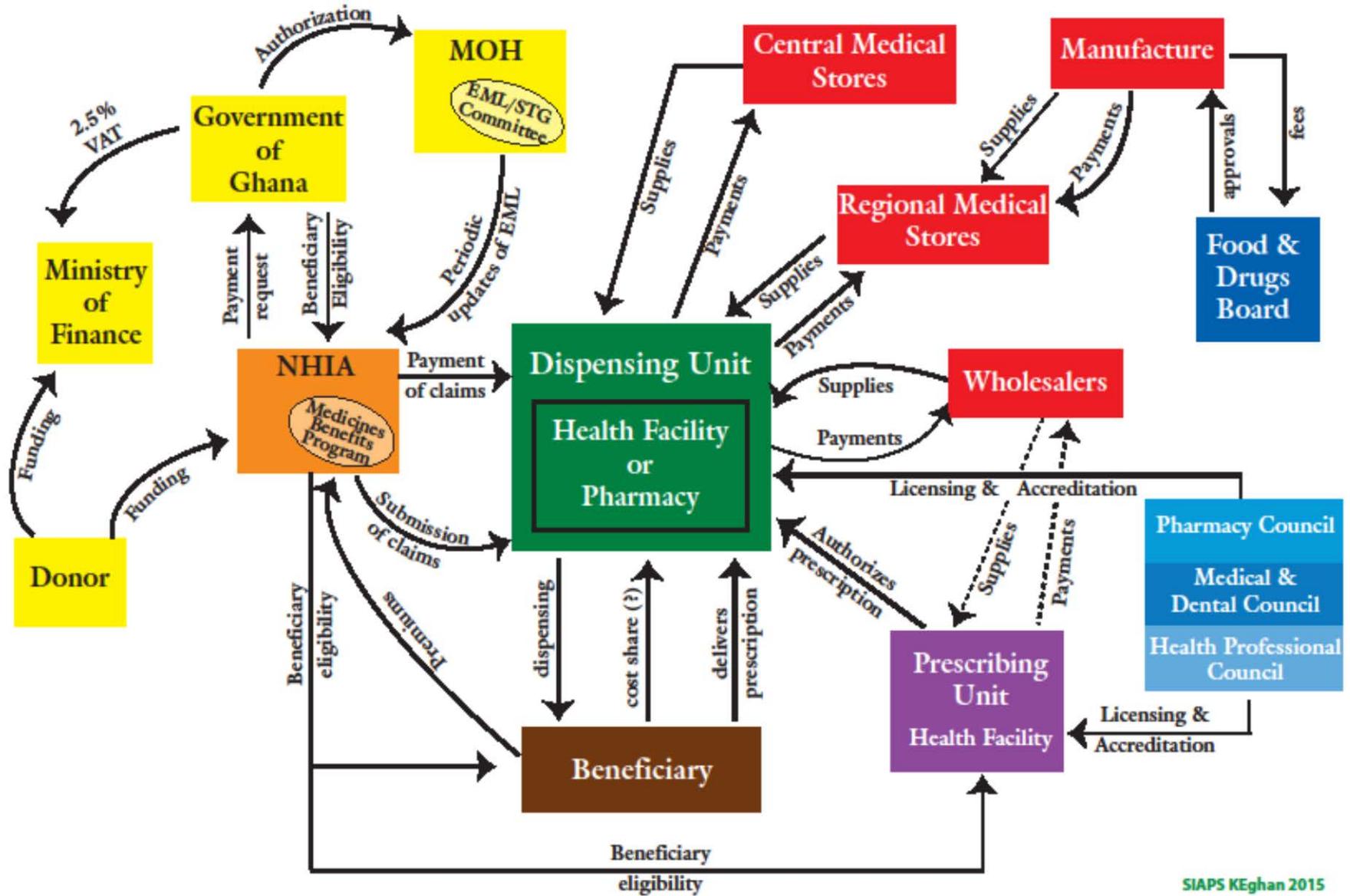
Pharmaceutical Sector and the National Health Insurance System: the medicine benefits ecosystem

The NHIS Medicines Benefits Program depends on a number of stakeholders. The stakeholders have a mix of financing, provision, and regulatory functions. Financing functions include *raising revenue, pooling resources, and purchasing services* (WHO framework for financing), while provision includes stakeholders who *deliver health and pharmaceutical services*. Table 2 lists the key stakeholders and defines their roles in the NHIS' MBP.

Table 2: Stakeholders and Their Roles in the Medicines Benefits Program in Ghana

Financing, provision, or regulatory function	Stakeholder	Core actions and responsibilities
Regulation and governance	Ministry of Health	Medicine policy development; EML & STG development; monitoring rational use of medicines in the country
	Food and Drugs Board	Licensing and regulation of manufacturers, importers of medicines; regulation of medicines and related substances to ensure safety, efficacy, and quality medicines
	Pharmacy Council	Licensing of pharmacies and chemical sellers; standards and norms for pharmaceutical practice
	Medical & Dental Council	Registration of health care providers; set health care standards and norms for medical and dental practices
	Health Professional Council	Accreditation of health care facilities
	Pharmaceutical Society & Medical Associations of Ghana	Advocacy
Revenue collection	Ministry of Finance	Collection of taxes, NHIL funds; budgetary allocation and disbursement of funds to the NHIA
	National Health Insurance Authority	NHIS premium collection
Pooling of resources	National Health Insurance Authority	Pools resources for purchasing health services and medicines benefits
Purchasing functions	National Health Insurance Authority	Uses DRGs, FFS, and capitation to purchase services and medicines on behalf of clients
	Regional Medical Stores, tertiary hospitals, GHS providers	Supplies medicines to RMS, public facilities, and nongovernmental organizations
	Donors	Health Access Network does a pooled procurement of medicines using donor funds
Service provision delivery	Hospitals and primary health care facilities, general practitioners, community pharmacies, dispensing doctors	Provision of health care services and medicines through dispensing to subscribers (patients)
	Pharmaceutical industry (manufacturers, importers, exporters wholesalers, RMS)	Sell medicines to providers

Ghana NHIS Medicines Benefits Program – Stakeholder Overview



PRINCIPAL FINDINGS

Medicine Selection

The NHIS medicines are based on the EML, which is used primarily in the public sector. The NHIS has both private and public sector providers. Sixty-seven percent (eight out of 12) providers from the private sector, and 50% (four out of eight) providers from the public sector interviewed indicated that they expect the NHIS to have a list that includes products used in both the public and the private sector. Hence, both public and private sector providers indicated that they prescribed medicines outside the list to subscribers from the formal work sector, who in turn had to pay out of pocket. Further studies on the extent of this level of non-adherence to the NHIS list and the impact on clients are required.

Payments for and Pricing of Medicines

Ghana has no price control system. Importers determine the price to market based on the landed cost plus a margin. The price for a patient is the wholesaler price plus a retailer margin. The NHIA sets the reimbursement price for NHIS medicines. The reimbursement price is the price at which the NHIA will pay providers and pharmacies for medicines provided to its subscribers. The NHIA price setting process involves selecting a sample of public and private health facilities, pharmacies, and licensed chemical sellers and obtaining the prices for each of the medicines on the NHIS list. Based on a range of prices for the medicines, a median price is selected and adopted as the reimbursement price for each category of medicine. The process is supposed to be repeated every year, but sometimes it takes up to two years for prices to be reviewed. Some facility medicine prices end up being lower than the median NHIS medicines prices, and some health facilities tend to make a lot of profits. However, due to high inflation and the depreciating Ghana Cedi to major currencies, some of the prices may become obsolete as quickly as they are set. For the selected medicines whose prices were tracked in the facilities and pharmacies visited during the assessment, the NHIS prices (figure 4) in the 2014 NHIS EML were 37% below market prices, on average.

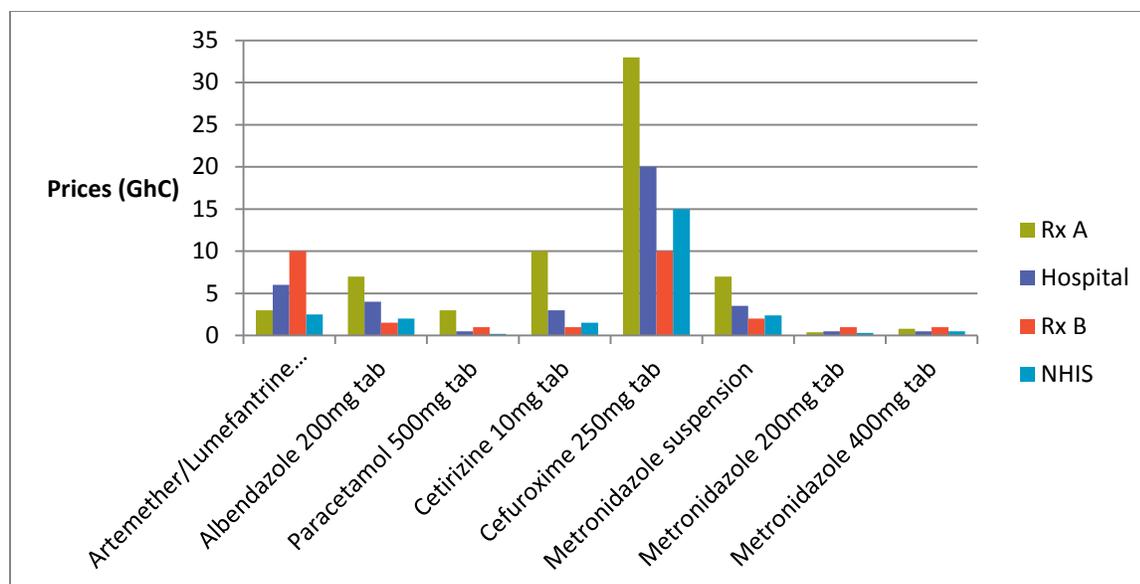


Figure 4. Facility versus NHIS prices for select medicines

Paracetamol had the highest price disparity; market prices were 60-93% higher than NHIS prices. However, in pharmacy B (Rx B), 50% of the selected medicines cost less than NHIS prices.

As mentioned earlier, over 70% of medicines used in Ghana are imported. Hence import duties, tariffs, foreign exchange rates, and markups significantly contribute to the final price of medicines in the sector. The foreign exchange rate (which has a heavy influence on medicine prices) of the US dollar (USD) to the GHS changes on a daily basis.

Infrequent Reviews of NHIS Medicine List Prices

Several stakeholders indicated that medicines prices were obsolete and needed to be revised frequently to be in line with currency depreciations.

Figure 5 shows the depreciation of the GHS to the USD over a period of 30 months. It was observed that over this period, there was a depreciation of over 70%, from a low of 1 USD to 2.254 GHS to 1 USD to 4.0107 GHS. This means that medicines prices more than doubled in terms of local GHS values. Two things can happen as a result: a number of wholesalers will lose a lot of capital, or a number may have forecasted such exchange rate fluctuations and factored this into their pricing, which the NHIS would adopt during its median price setting process.

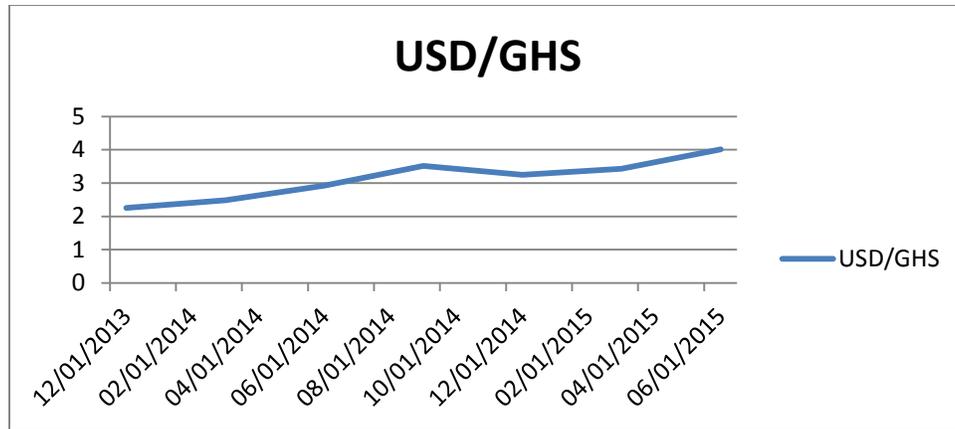


Figure 5. Change in foreign exchange rate of the GHS to the USD

The assessment confirmed that the NHIS price list published in July 2014 had not been revised as of April 2015. The implication of this for the entire pharmaceutical system was that providers were buying and stocking higher priced pharmaceuticals. Moreover, to be able to pay suppliers, facilities and pharmacies were charging unauthorized or illegal payments to match the price differences or were refusing to provide medicines coverage to NHIS beneficiaries. Most health facilities and private pharmacies visited kept two price lists: the NHIS list with set reimbursement prices and a facility’s list with prices. When the price on the health facility list was above the NHIS list price, patients had to make informal or illegal payments, which is referred to as “top-up.” If a patient refused to pay the difference, the facility would simply state that the medicine was out-of-stock. Some public sector health facilities had simply put up a sign stating that no medicines were available for NHIS subscribers.

Prescribing and Adherence to Treatment Guidelines: Malaria, Upper Respiratory Tract Infections, and Maternal Health Conditions

Adherence to treatment guidelines for malaria, URTI, and management of postpartum hemorrhage (PPH) at health facilities was explored through an analysis of prescribing practices, using retrospective facility records for both NHIS and non-NHIS subscribers. One hundred ninety-seven (197) patient records in total were reviewed that included a diagnosis of malaria, URTI, or the use of uterotonic medicines for the prevention and treatment of PPH as per labor room records for deliveries. The distribution of the 197 cases reviewed is given in table 3.

Table 3. Distribution of Cases Reviewed

Malaria lab/rapid diagnostic test (RDT)-confirmed malaria	Malaria: non-lab or RDT	Upper respiratory tract Infection	Number of cases for use of uterotonic medicines	All N=197
81	44	43	29	197
41.0%	22.0%	22.0%	15.0	100%

Table 4. Types of Therapies Prescribed for Uncomplicated Malaria at Health Facilities Visited

Type of Therapy	Malaria	N= 125
Inj Artemether+AL 20/120mg	11.3%	
Inj Artesunate + AL 20/120mg	9.1%	
AL 40/480mg	55.3%	
AS+AQ	14.8%	
DHA-PQ	6.1%	
SP	3.4%	

Management of Uncomplicated Malaria

The standard pharmacological treatment for uncomplicated malaria involves the use of oral agents (artesunate-amodiaquine [AS+AQ] or artesunate-lumefantrine [AL] or dihydroartemisinin-piperaquine [DHA-PQ]) (table 4).¹⁸ Contrary to treatment guidelines for uncomplicated (simple) malaria in children and adults, 20.4% of malaria cases reviewed showed that a one-time initial or stat dose of intravenous artesunate or intramuscular artemether was administered, followed by a full course treatment of oral AL. Fifty-five percent (55%) of prescriptions for malaria reviewed were for arthemeter-lumefantrine 40/480 mg, a formulation not recommended in the STG and the revised guidelines for case management of malaria in Ghana.¹⁹ Furthermore, it was noticed that even though laboratory testing for malaria parasitemia is covered by the NHIS, presumptive treatment is still prevalent in the absence of testing. In some cases, patients were given antimalarials even after the occurrence of a negative rapid diagnostic test (RDT).

Upper Respiratory Tract Infections

For the treatment of URTIs, a wide range of antibiotics, from amoxicillin to third generation cephalosporins, were prescribed. Six out of eleven health facilities indicated that the NHIS reimbursed them for use of the third generation cephalosporin once it was on the NHIS list, and despite noncompliance with the STG. We observed that a key focus of the paper-based claims process appeared to be to check whether the medicine being claimed was on the NHIS list and whether the medicine price was compliant with that determined by the NHIA, and not on compliance with treatment protocols. At the CPC in Accra, where the electronic claim system was being used, the NHIA shared examples where non-adherence with STGs for claims made for URTIs had been routinely rejected.

Normal Delivery

Instances of non-adherence to the STG were also observed in the use of uterotonic medicines by midwives and physicians. The national STG for PPH prevention clearly indicates administering 10 international units (IU) of oxytocin, however, the review of patient records indicated that providers documented giving higher than recommended doses of oxytocin as well as the administration of a combination of ergometrine, misoprostol, and oxytocin in a few cases. Reasons given for this included provider mistrust of the medicine’s potency as well as evidence of “mild” bleeding after delivery in the presence of confounding factors, such as the occurrence of an episiotomy during delivery and a previous history of more than normal postpartum bleeding. It was also noted that certain hospitals were asking patients to pay out of pocket for oxytocin as the provider had a previous claim rejected by the NHIA and the reason for the claim’s rejection had not been clarified for the provider.

Number of Medicines Prescribed Per Patient Per Health Facility Type and NHIS Status

Table 5. Number of Medicines for NHIS and Non-NHIS Beneficiaries

Health Facility Type	Mean		Median	
	NHIS	Non-NHIS	NHIS	Non-NHIS
Public hospital	3.85	4	4	4
Mission hospital	3.68	3.7	4	4
Private clinic	4.33	5	4	4
.	3.95	4.2	4	4

The mean number of medicines prescribed per patient was 3.95 for NHIS subscribers and 4.2 for non-subscribers (table 5). The median number of medicines prescribed for both subscribers and non-subscribers was 4. Based on the data obtained, with the exception of the private sector that showed a slightly higher mean for NHIS patients, there was virtually no difference in prescribing practices based on the status of patients.

Delayed Reimbursement by NHIA to Providers

Delayed reimbursement was a pressing concern for health providers, most of whom reported that up to 70% of their client base were NHIS subscribers. (Five of the seven hospitals visited reported that NHIS subscribers made up 70% of their client base.) This means that large amounts of the hospitals’ revenue was tied to the NHIS. A review of records at a large CHAG hospital revealed that the most recent reimbursement from the NHIA was received in March 2015 for claims submitted eleven months previously, in May 2014. The claims submitted in May 2014 were valued at GHS 341,276.40 (\$85,319), of which only GHS10,481.94 (\$2,620) had been reimbursed.

With a history of delayed reimbursements, depleting capital, a growing debt, and an inability to restock due to delayed reimbursement, the facility has taken internal measures to address these issues. The hospital now requires informal charges for services from all patients, including NHIS subscribers. Patients are asked to make a payment before visiting the physician on duty. It has also instituted a cost sharing regime for maternal, neonatal, and child health services. Women coming for a normal delivery have to pay a flat rate before they can access services. The accounts department has been separated from the pharmacy department. It receives all payments on behalf of the pharmacy before sending the patient to pick up a medicine. The diagnosis and corresponding medicine are recorded in the accounts department. There is one flat rate per medicine that is billed to patients regardless of their NHIS subscription. If the reimbursement price is lower than the flat rate, a co-payment is requested.

There is a snowball effect resulting from the delayed reimbursement to health care facilities and pharmacies. Over ninety percent (93%), 25 out of 27 health facilities and pharmacies visited, had not recently received reimbursement of claims from the NHIA, with the duration of delays varying from three to nine months. Complaints were greater in the pharmaceutical area because delayed reimbursement leads to visible stock outs, which patients and stakeholders commented on. Public and private sector health providers had not been able to pay the medicine suppliers, who in turn had decreased (and in some cases stopped) supplying medicines to the facilities. Some suppliers claimed that they had defaulted on bank loans due to non-payment and have had to increase medicine prices to other customers in order to generate income. Facilities then opt not to provide medicines to NHIS patients (subscribers) or bill the full cost to patients. Due to delayed reimbursement by the NHIA, some health care facilities, including public sector clinics (e.g., polyclinics) have opted not to bill the NHIA for the cost of medicines and instead transfer the full cost of medicines to patients at the facility level. It has therefore become challenging to continue to provide services and medicines without resolution of past reimbursement issues.

Subscriber Over Utilization

The NHIS health benefits package does not define any limits on the use of services by subscribers. Interviews with NHIA indicated that there was no system to track multiple visits by subscribers. The increase in beneficiary use of services and medicines could further compound the problem of unresolved debt to service providers.

Analysis of NHIA Claims Data

We conducted an analysis of sample claims data from the NHIA electronic E claims system and its paper-based system. In all, the NHIA gave us access to 923,000 claims records, which represented approximately 200,000 encounters. The E claims data reviewed had the following information: age and gender; treatment type; G-DRG code; ICD-10 code; medicine code; medicine unit price; quantity of medicines; and date of service. The paper-based data received and coded by the team's data entry clerks had all the same data elements, except unit price and quantity of medicines.

Table 6. Number of Claims by Health Facility Type

Health facility type	% of claims
Private clinics & hospitals	26.5%
Mission hospitals	35.9%
Government regional hospitals	18.9%
District hospitals	11.1%
Teaching hospital	7.6%

Data received from the NHIA were from claims filed in the months of January, September, November, and December 2014.

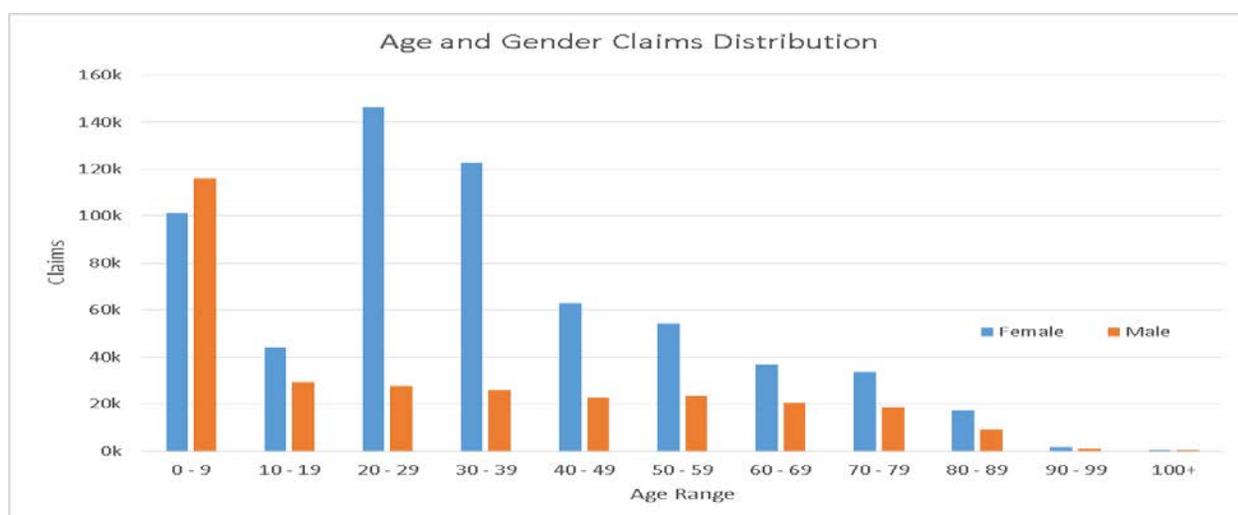


Figure 6. Age and gender distribution for claims reviewed

Approximately 34% of claims (315,000) were for subscribers aged 0 to 19 years (figure 6).

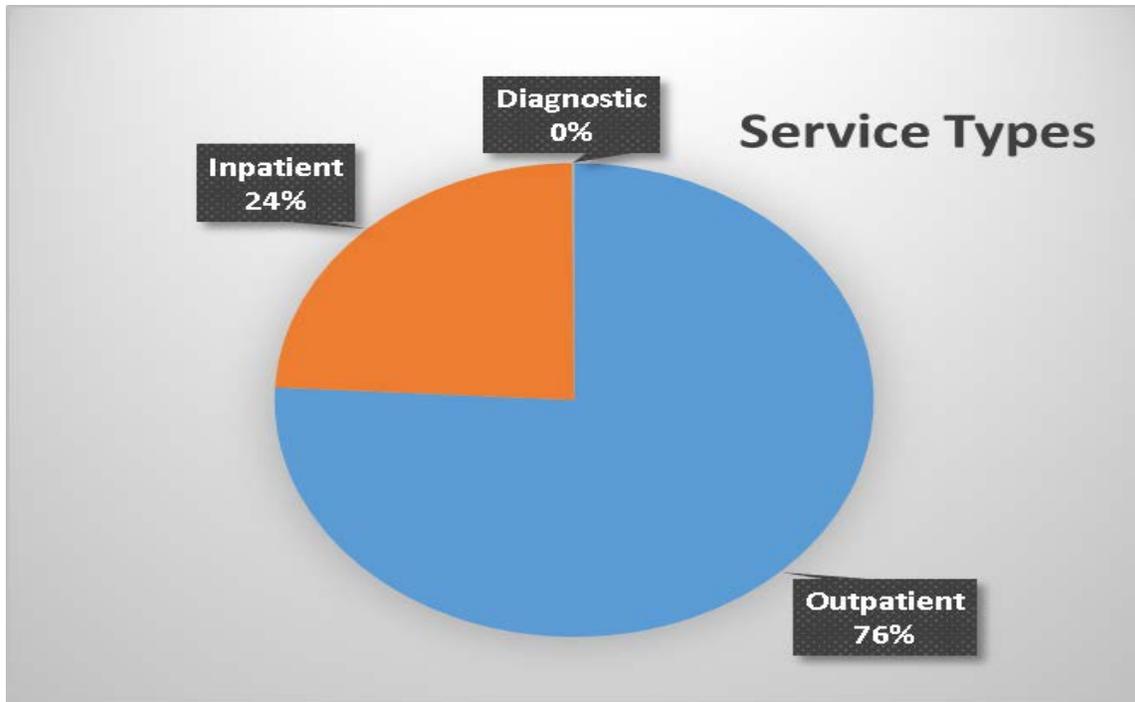


Figure 7. Distribution by type of services based on G-DRG codes and ICD-10 codes

Medicine Codes

A total of 522 codes are listed in the NHIS medicines list, which represent the name, dose, and strength of a medicine. The list has units, unit prices, and level of prescribing for each medicine. The claims data reviewed had 491 unique medicine codes, but only 378 (77%) could be mapped to the NHIS list, meaning that 23% of claims were processed without a mapping to the NHIS list.

Top 10 Most Claimed Medicines

The NHIA indicated that its total medicines costs for 2012 were GHS279,813,040 (approximately \$60 million). This amount was about 45% of its total health care claims costs. The inpatient and outpatient components of the total medicines claims were 19% (GHS52,716,091) and 81% (GHS227,096,949,) respectively.

During the assessment, the team also reviewed medicines claims from 30 health facilities, as reported from the E-claims data over the period September to November 2014. The ten most widely used medicines accounted for approximately 31% of medicines claims for that period (table 7). Six out of the ten top medicines are considered over-the-counter medications.

Table 7. Top 10 Most Claimed Medicines

Med_Code	Frequency	Percent
PARACETA1	48,530	8.52%
FOLACITA1	19,750	3.47%
PARACESY1	19,410	3.41%
ARTLUMTA1	17,732	3.11%
MULTIVTA1	16,987	2.98%
DICLOFTA2	11,438	2.01%
IROPOLSU1	11,147	1.96%
IBUPROTA2	10,684	1.88%
SODCHLIN3	10,381	1.82%
COAMOXTA1	9,855	1.73%

Malaria-Related Share of Encounters in the Database

When encounters with malaria as the only diagnosis were analyzed, 25% of cases had three or more items prescribed. The items varied, and included vitamins, pain killers, anxiolytics, anti-hypertensives, anti-histamines, and anti-diarrheas.

Table 8. Malaria Encounters by Service Type

Service type	% of malaria encounters
Inpatient	17%
Outpatient	83%

Approximately eight out of ten malaria encounters analyzed were outpatient cases (table 8).

Table 9. Malaria Encounters by Age and Sex

	% of malaria encounters	Median age*
Female	62.1%	25
Male	37.9%	8
Total	100.0%	

* A median age is given because the age data are skewed. Of the total 198,270 encounters analyzed, encounters with a malaria diagnosis numbered 57,222 (28.9%). Malaria diagnosis was indicated in the presence of a G-DRG code for malaria (MEDI 28A or PAED36C or ICD-10 B54x).

Table 10. Anti-Malarial Prescriptions in the Claims Data

Medicine	Frequency	Percent	Cumulative frequency	Cumulative percent
Artemether + lumefantrine	32498	58.44	32498	58.44
Amodiaquine + artesunate	8880	15.97	41378	74.41
Quinine dihydrochloride	6557	11.79	47935	86.20
Dihydroartemisin + piperaquine	5131	9.23	53066	95.43
Artemether	1555	2.80	54621	98.23
Artesunate	965	1.74	55586	99.96
Sulfadoxine + pyrimethamine	21	0.04	55607	100.00

Artemether+lumefantrine was the most frequently reimbursed antimalarial representing, 58% of the antimalarial prescriptions in the claims data analyzed (table 10).

Table 11. Anti-Malarial Prescriptions in the Claims Data by Unique Medicine Code

Medicine code	Frequency	Percent	Cumulative frequency	Cumulative percent
ARTLUMTA1	17657	31.75	17657	31.75
ARTLUMSU1	8409	15.12	26066	46.88
DIHPIPCA1	5112	9.19	31178	56.07
AMOARTTA2	4716	8.48	35894	64.55
ARTLUMTA3	4618	8.30	40512	72.85
QUINININ1	3571	6.42	44083	79.28
QUININSY1	2152	3.87	46235	83.15
AMOARTTA1	1636	2.94	47871	86.0
ARTEMEIN2	1555	2.80	49426	88.88
AMOARTPO1	1481	2.66	50907	91.55
ARTLUMPO1	1125	2.02	52032	93.57
AMOARTPO2	1038	1.87	53070	95.44
ARTESUIN1	942	1.69	54012	97.13
ARTLUMTA2	662	1.19	54674	98.32
QUININTA1	563	1.01	55237	99.33
QUININSU1	271	0.49	55508	99.82
*SULPYRTA	21	0.04	55529	99.86
ARTESURE1	20	0.04	55549	99.90
*DIHPIPCA	19	0.03	55568	99.93
*ARTLUMTA	18	0.03	55586	99.96
ARTLUMTA4	9	0.02	55595	99.98
AMOARTTA	8	0.01	55603	99.99
ARTESURE2	3	0.01	55606	100.00
*AMOARTTA	1	0.00	55607	100.00

As per the STGs and the revised treatment guidelines for case management of malaria in Ghana, three artemisinin-based combination therapy (ACT) products with recommended doses have been selected for use nationally:

- **Artesunate-Amodiaquine coded by the NHIA as:**
 - AMOARTPO1 for Amodiaquine + Artesunate Granular Powder, 75 mg + 25 mg
 - AMOARTPO2 for Amodiaquine + Artesunate Granular Powder, 150 mg + 50 mg
 - AMOARTTA1 for Amodiaquine + Artesunate Tablet, 75 mg + 25 mg (6 tabs)
 - AMOARTTA2 for Amodiaquine + Artesunate Tablet, 150 mg + 50 mg (12 tabs)

- **Dihydroartemisinin-Piperaquine coded by NHIA as:**
 - DIHPIPCA1 for Dihydroartemisinin + Piperaquine Capsules, 40 mg+ 320 mg (9s)
 - DIHPIPP01 for Dihydroartemisinin + Piperaquine Granular Powder, 10 mg + 80 mg

- **Arthemether –Lumefantrine coded by NHIA as:**
 - ARTLUMPO1 for Artemether + Lumefantrine Granular Powder, 20 mg + 120 mg
 - ARTLUMSU1 for Artemether + Lumefantrine Suspension, (Powder for Reconstitution)
20 mg + 120 mg / 5 mL
 - ARTLUMTA1 for Artemether + Lumefantrine Tablet, 20 mg + 120 mg (24's)

As seen in table 11, the analysis showed that in about 10% of cases, higher dose formulations of Artemether –Lumefantrine, namely 40+240 mg tablets and 80+480mg tablets, were processed for claims instead of the recommended 20+120 mg formulation. These doses were not recommended by the STGs or guidelines for case management of malaria. Indeed, the codes ARTLUMTA3 and ARTLUMTA4, as shown in table 11, were not found on the NHIS list.

Table 12. Number of Medicines Prescribed per Malaria Encounter

# of medicines	Frequency	Percent
2	35100	75.61
3	7703	16.59
4	2448	5.27
5	780	1.68
6	344	0.75
7	43	0.09
8	5	0.01

Quantities of Medicines Being Dispensed

The quantities of medicines dispensed are not consistently recorded. For example, a course of six tablets may be recorded as a quantity of one (for the course) or six (for the tablets). Additional data are therefore needed to conduct a more detailed ABC analysis to established cost drivers.

RECOMMENDATIONS FOR STRENGTHENING THE NHIS MEDICINES BENEFITS PROGRAM

Although further investigations and costing of options are required, the results of the assessment provide broad directions for action. The following recommendations are offered:

- ***Need for increased coordination and communication with and among stakeholders.*** There is need for a structured mechanism for dialogue and two-way feedback between the NHIA and key stakeholders. This could be achieved, for example, through the establishment of a *Pharmaceutical Pricing and Negotiations Committee or Working Group*, which would serve as a platform to negotiate prices, update stakeholders on member eligibility, and the current round of payments.
- ***Improve NHIS payments to providers for services rendered.*** Regular and timely release of NHIA funding by the Ministry of Finance will be key to sustaining health service provision to NHIS subscribers, in general, and specifically for the MBP. This should start with the reimbursement of current funds owed to facilities, one of the most pressing concerns about the program identified by this assessment. It is strongly recommended that the NHIA develop a plan for payment to facilities; it should be designed to resolve the debt, either in its totality or partially over a set period of time. While the ultimate goal will be the full elimination of debt, it is necessary to make a gesture of good faith and restore provider confidence in the NHIA by making small payments in the interim. It should be borne in mind that debt will continue to accrue as NHIS patients continue to receive care from health facilities.
- ***Reforms needed on health and medicines benefit package.*** There is a need to set limits on the use of services over a defined period. Additional tools need to be introduced to cap the use of services, even under the current capitation pilots.
- ***Conduct a detailed cost analysis of the operations of pharmacies, wholesalers, and clinic dispensaries*** to enable the setting of economically sustainable reimbursement rates for private health sector service providers, pharmacies, and independent chains. The public sector receives subsidies for its operations, but gets reimbursed at the same prices for medicines as the private sector.
- ***Analyze options for subscriber cost sharing.*** Conduct an ability to pay or willingness to pay options analysis to determine acceptable levels of subscriber cost sharing for medicines. Conduct an options analysis on subscriber cost sharing for medicines. A well-designed copayment system, with zero co-pays for generics and tiered payments for branded generics and innovator products, may be considered and could address stakeholder concerns, especially those of the formal and private sector subscribers, and improve the sustainability of the NHIA. This may be one way to address the increasing number of illegal payments at the health facility level and curb the overuse of services.

- ***Redesign the reimbursement and price setting model to factor in inflation and foreign exchange rate fluctuations.*** The analysis to support this work would include options for the introduction of dispensing fees, as opposed to a reliance on mark ups.
- ***Strengthen human resource capacity.*** The NHIA and the pharmaceutical system need to build staff capacity as well as recruit staff with appropriate backgrounds and capacity in disciplines, such as health and pharmacoeconomics. The NHIA needs to build its capacity to analyze large medicines use databases and be able to link medicines use data with expected health outcomes.
- ***Media strategy.*** The NHIA has been discussed by several parties in the media, leading to an erosion in trust by the public. The recent public perception of the NHIA has been largely based on the outstanding debts, lack of reliable information about the NHIS, and what appears to be an inability to pay providers for debts accrued. In the interviews conducted by the SIAPS team, the reaction was primarily negative, with recurring questions about when payments would be received and why they were delayed. It is imperative to reassure providers and patients of the intent and ability of the NHIA to settle outstanding debts and ensure continued quality of care for all NHIS beneficiaries. This can be achieved through a consistent and intentional media strategy to keep stakeholders informed of the proposed payment interventions and relevant timelines for payments.
- ***Service Delivery: separation of pharmaceutical and health services.*** Medicines sales in public and private health facilities are seen as a source of internally generated income by prescribers and health facilities. This could provide incentives for increased prices and top-up to patients. To eliminate these incentives, several countries, including Namibia and Korea, have successfully implemented separation of these services. A number of countries have also looked at options to reduce dependency on the use of margins through the introduction of a single exit price mechanism and dispensing fees.
- ***Introduce an electronic pharmacy benefits management platform*** to improve the availability of information for decision making through prospective and/or concurrent medicine use reviews. Currently, the NHIA does not undertake itemized medicine use analysis. The NHIA focuses on the aggregate monetary value of claims and makes claims payment based on total cost. As a result, the NHIA may be missing significant information about medicine use and costs. With medicines constituting over 50% of current claims, this challenge needs to be addressed. Data for medicines use reviews can be hard to capture without the aid of a strong information technology system. Medicines benefits programs that do not rigorously review medicines use are most certainly losing significant resources. The current paper-based system used by the NHIA also makes it very difficult to address fraud and improve timely payment of medicines claims. An electronic system with a pharmacy benefits management capability should be able to routinely document information about itemized medicine claims (including per member per month cost of medicine, per member per month cost per therapeutic class of medicine, name, dosage form, strength, prescribed regimen, total number of dispensed doses, dispensing price, generic/brand, etc.).

With an electronic pharmacy benefits management platform, a holistic but phased approach is recommended. It starts with the installation of electronic point of sales equipment at all dispensing units that are credentialed to make medicine claims to the NHIA. Such a system should provide dispensers with the opportunity to review patient medicine regimens and history before dispensing. The credentialed dispenser checks for patient and prescriber eligibility, therapeutic duplications, and adherence to STGs before dispensing. Ultimately, the technology platform could have varied options for submission of claims before making batch submission to the NHIA for adjudication. The electronic platform should provide a link between dispensing units and the CPC or to a third party organization that adjudicates medicines claims. The platform should have the capability of displaying selected medicine use indicators on a dashboard.

ENDNOTES

1. World Health Organization. *World Health Report 2008*. Geneva: WHO; 2008.
2. World Bank. *The pharmaceutical sector in Ghana: policy note*. Washington DC: World Bank; 2009.
3. Hedidor G. *Ghana National Medicine Policy Review 2014: The Process*. Powerpoint presentation. November 4, 2014.
4. Blanchet NJ, Archeampong OB. *Building on Community-based Health Insurance to Expand National Coverage: The Case of Ghana*. Bethesda, MD: Abt Associates; 2013.
5. New Patriotic Party. *National Health Insurance Policy Framework in Ghana*. Accra: NPP; 2000.
6. Republic of Ghana. *National Health Insurance Act, 2003 (Act 650)*. 2003.
7. Republic of Ghana. *National Health Insurance, 2012 (Act 852)*. 2012.
8. Republic of Ghana, *Insurance Act, 2006 (Act 724)*. 2006.
9. Archeampong OB. "Health Care Financing, Ghana's Experience with the NHIS." Presentation to the Wonca Africa Conference, Accra, Ghana, May 6-9, 2015.
10. Center for Pharmaceutical Management. *Access to Essential Medicines: Ghana*. Prepared for the Strategies for Enhancing Access to Medicines Program. Arlington, VA: Management Sciences for Health; 2003.
11. World Bank. *The pharmaceutical sector in Ghana: policy note*. Washington DC: World Bank; 2009.
12. Anum PO, Mankartah GE, Anaman KA. *Assessment of Pharmaceutical Wholesale Market in Ghana: An Incentive Survey*. Accra: Medicines Transparency Alliance; 2010.
13. Food and Drugs Act of 1992. http://www.wipo.int/wipolex/en/text.jsp?file_id=225583. Accessed August 31, 2015.
14. Food and Drugs (Amendment) Act, 1996 (Act 523). <http://faolex.fao.org/docs/pdf/gha17283.pdf>. Accessed August 31, 2015.
15. Seiter A, Rosen P. *Pharmaceutical Sector Ghana- a snapshot*. Unpublished report. 2015.
16. Chaudhuria S, West A. Can local producers compete with low cost imports? A simulation study of pharmaceutical industry in low-income Africa. *Innovation and Development*. 2014. DOI: 10.1080/2157930X.2014.921273.
17. Arhinful DK. *WHO Pharmaceutical Situation Assessment –Level II*. Accra: MoH, Ghana; 2009.
18. Republic of Ghana, Ministry of Health. *Ghana Standard Treatment Guidelines*. Accra: Ministry of Health, Ghana National Drugs Programme; 2010.
19. Republic of Ghana, Ministry of Health. *Guidelines for Case Management of Malaria in Ghana*. Accra: Ministry of Health, National Malaria Control Programme; 2014.