CARISCA Centre for Applied Research and Innovation in Supply Chain – Africa

Health Supply Chain Financing System in Ghana: Implications for Policy and Practice

Initiated by and prepared for:

Center for Applied Research and Innovation in Supply Chains – Africa (CARISCA), KNUST, Ghana

Prepared by:

- Dr. Abdul Samed Muntaka
- Dr. Emmanuel Kwabena Anin
- Bernard Asamany

USAID FROM THE AMERICAN PEOPLE

Arizona State University

KNUST KWAME NKRUMAH UNIVERSITY OF SCIENCE AND TECHNOLOGY

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ABBREVIATIONS

ABFA : Annual Budget Funding Amount

CBHIS : Community-Based Health Insurance Scheme

CHAG : Christian Health Association of Ghana

GDP : Gross Domestic Product

GoG : Government of Ghana

IGF : Internally Generated Funds

NHIA : National Health Insurance Authority

NHIS : National Health Insurance Scheme

OECD : Organization for Economic Cooperation and Development

OOP : Out-of-Pocket

SDG : Sustainable Development Goals

UHC : Universal Health Coverage

WHO : The World Health Organization

EXECUTIVE BRIEF

The third Sustainable Development Goal (SDG 3) adopted by the United Nations focuses on ensuring healthy lives and promoting wellbeing for all at all ages through Universal Health Coverage (UHC). The World Health Organization (WHO) asserts that realizing this vision necessitates establishing a sustainable financing system, making health supply chain financing a key priority in the health ecosystem. Both the WHO financing framework and the Abuja 2001 Declaration have outlined minimum funding thresholds to guide member states in their investments toward UHC.

Ghana, recognizing the importance of improving its healthcare financing system, has implemented various policy interventions over the years. Notably, the introduction of the National Health Insurance Scheme in 2003 exemplifies Ghana's commitment to UHC. However, despite these policy interventions, Ghana's investment efforts in the health sector have proven insufficient to reach UHC, highlighting the need for policy reforms for healthcare financing.

This study employs a mixed methods approach to assess the effectiveness of current healthcare financing mechanisms in Ghana to gain insights that can be used to shape and inform health financing policies in the country. It aims to highlight the financing deficiencies hindering the achievement of UHC goals and propose alternative models for policy consideration. The study draws on interviews with 50 practitioners, to complement secondary data obtained from the Ministry of Health and the World Bank database for analysis.

Analysis of the healthcare system in Ghana reveals three principal financing mechanisms: (1) government budget allocations, Internally Generated Funds (IGF) involving the National Health Insurance Scheme (NHIS); (2) private/mutual health insurance; (3) Out-of-Pocket (OOP) Payments, (4) donor funding, and support from philanthropists. Over the years, these mechanisms have significantly influenced the quality of healthcare in Ghana. The results also revealed a financing gap within Ghana’s health supply chain. The identified funding gap indicates a shortfall in meeting the Abuja 2001 target and progressing toward UHC, emphasizing the urgent need for increased healthcare investment in Ghana.

Again, evidence of consistent funding support from donors and development partners was observed, constituting an average of 16% between 2010 and 2022. This underscores the significance of donor support from Ghana’s development partners over the years. However, the findings indicate a noticeable decline in donor funding, particularly between 2018 and 2022. This diminishing trend in donor support to the health sector since 2018 signals the urgent need for Ghana's gradual shift toward self-financing in the health supply chain.

While commendable, this transition necessitates a deliberate strategy including leveraging innovative technologies to enhance efficiency and accountability in healthcare financing, to not only make up these shortfalls but also sustain self-financing efforts and reduce catastrophic OOP payments.

Finally, the identified funding inadequacies highlight the necessity of exploring alternative financing schemes to complement the existing models. Two proposed financing models were identified for policy considerations: extension of the NHIS to encompass optional premium packages, and revitalization of private and community mutual/religious-based health insurance plans. These strategies emerge as potential avenues for maximizing revenue generation, pooling resources, and facilitating the purchase of healthcare services.

1. INTRODUCTION

In 2015, the United Nations adopted 17 Sustainable Development Goals (Joshi et al., 2021). The third Sustainable Development Goal (SDG 3) aims to ensure healthy lives and overall wellbeing for all, at all ages, through the Universal Health Coverage (UHC) initiative (Dowou et al., 2023; Karamagi et al., 2023; United Nations General Assembly, 2015; World Health Organization, 2010). Achieving this vision requires sustainable healthcare financing, a critical driver of the UHC initiative (World Health Organization, 2023; Dowou et al., 2023; Agyepong et al., 2016). Specifically, the UHC agenda seeks to ensure that people have access to the quality health services they need, when and where they need them, without suffering financial hardship (World Health Organization, 2010). Several countries have made significant progress in achieving this objective. For instance, some sub-Saharan African countries have made significant progress toward universal health coverage (UHC), with an annual increase of 2.6% in effective coverage from 2010 to 2019 (Dowou et al., 2023; Lozano et al., 2020). Despite these positive strides, a significant number of countries continue to face challenges in providing accessible and quality healthcare systems, undermining the effort toward achieving SDG 3 (Kodali, 2023). For example, it is reported that globally about 3.1 billion people still lack access to crucial health services (Kodali, 2023). Relatedly, the United Nations Economic Commission for Africa (2019) reports that health spending in Africa remains insufficient to address the increasing healthcare financing needs and demands, resulting in an annual financing gap of $66 billion.

Ghana has developed policy interventions over the years to improve and enhance its healthcare system. These include the establishment of the NHIS in 2003 to improve financing and access to equitable and quality healthcare (Issahaku et al., 2021; Ayanore et al., 2019) and the implementation of the Community-Based Health Planning and Services in 1999 to bring healthcare services closer to communities (Bassoumah et al., 2021; Kweku et al., 2020). While these policies have improved healthcare utilization and reduced access disparities among Ghanaians (Issahaku et al., 2021), the health sector in Ghana continues to be saddled with some challenges. For example, Primary Health Care, a crucial component of the healthcare system, is faced with constraints arising from inadequate resources and logistical constraints. These include limited drugs, supplies, and infrastructure support, resulting in low service coverage, low community utilization, and suboptimal health outcomes (Ministry of Health, 2023; Addi et al., 2022). Also, there

are concerns regarding delays in claim reimbursement from the National Health Insurance Authority (NHIA) (Akweongo et al., 2021). These have mainly been attributed to insufficient healthcare financing, a major impediment undermining healthcare operations in Ghana (Dowou et al., 2023; World Health Organization, 2010). Consequently, stakeholders have called on Ghana's government to develop innovative and sustainable health financing mechanisms to help place the country's health system on the path to achieving the UHC target and SDG 3 (NHIA, 2023; Akweongo et al., 2021; World Health Organization, 2019).

In response to that call, this study seeks to evaluate existing financing models in the health supply chain in Ghana. This research seeks to inform health financing policy and management by offering valuable insights for policymakers regarding the efficacy of existing financing structures within Ghana's health supply chain. By delving into the intricacies of the existing financing models in Ghana, we aim to shed light on their effectiveness and identify potential areas for improvement. Additionally, we seek to highlight funding gaps within Ghana's health supply chain, offering a comprehensive understanding of the country's health financing landscape. This insight can be instrumental in enhancing the allocation of resources and optimizing funding strategies to strengthen the health supply chain in Ghana. We further shed light on the extent of Ghana's reliance on donors for healthcare financing, highlighting the importance and significance of the contributions from the country's foreign development partners. While donor agencies and international partners play a crucial role in advancing progress toward SDG 3, the implication of such dependency deserves greater reflection. Finally, we illuminate emerging potential financing models that could propel a sustainable health supply chain in Ghana, offering valuable information for shaping health financing policy decisions.

2- HEALTHCARE FINANCING IN PERSPECTIVE

2.1 Health Financing System

Health system financing is a fundamental building block of the World Health Organization's (WHO) comprehensive health system framework, alongside service delivery, the healthcare workforce, information, medical products, vaccines, and technologies, as well as leadership and governance (Ottersen et al., 2017; Organization for Economic Co-operation and Development (OECD, 2017) (see Figure 2.1). The health system financing element is paramount, as it intricately interacts with all other components, exerting a significant impact on health systems, efficiency, financial protect ion for patients, and responsiveness to the needs of consumers in an equitable, efficient, and sustainable manner (Schieber et al., 2012).

Primarily, the health financing system comprises distinct subfunctions and policies (WHO, 2023; Myint et al., 2019; Kutzin, 2008). These include revenue-raising (sources of funds, including government budgets, compulsory or voluntary prepaid insurance schemes, direct out-of-pocket payments by users, and external aid), pooling of funds (the accumulation of prepaid funds on behalf of some or all of the population), and purchasing of services (the payment or allocation of resources to health service providers) (WHO, 2023) (see Figure 2.2). The overarching aim of health system financing is to facilitate the element of the health system framework to advance UHC objectives through access, coverage, quality, and safety. Key long-term goals of UHC include improved health (level and equity), social and financial risk protection, responsiveness, and improved efficiency. The short-term objectives include facilitating the equitable utilization and provision of services based on the actual need for such services, enhancing transparency and accountability within the system for the benefit of the population, fostering quality and efficiency in the delivery of healthcare services, and streamlining the administration of the health financing system to enhance overall efficiency (Kutzin, 2008).

Healthcare financing has undergone significant transformations, transitioning from individual out-of-pocket payments during service delivery to more comprehensive models supported by public funding through mechanisms such as general taxation and health insurance systems (Tulchinsky et al., 2014). Countries, including industrialized economies, need the government to finance healthcare either for the entire population or at least for vulnerable groups such as the elderly and the poor, particularly for healthcare services that are not adequately covered by national health insurance systems (Tulchinsky et al., 2014).

The health financing system involves not only generating funds, but also strategically allocating these funds to the health sector to finance a diverse array of healthcare programs (Tulchinsky et al., 2014). The size of the health sector's budget allocation, which usually depends on myriad competing priorities that governments grapple with (Tulchinsky et al., 2014), influences the accessibility, affordability, and quality of health services for their population.

Globally, healthcare financing systems appear similar across geographical jurisdictions, moving away from a fee-for-service model toward innovative payment models, including social health insurance (Monica et al., 2018). In most developed economies, healthcare services are mostly financed by government-generated revenues, usually through taxes, and by health insurance schemes. These insurance schemes may be either public, which is usually mandatory, or privately managed (OECD, 2017). While other financing models such as co-payment and Out-of-Pocket (OOP) payments also exist, government funding and mandatory health insurance schemes remain the major financing mechanisms, accounting for over 75% of total health expenditure in most developed economies (OECD, 2017).

In sub-Saharan Africa, the healthcare sector faces financing hurdles mainly due to the region's low income—with about one-third of the global poor living in the region (Conde et al., 2022; Bhorat et al., 2018)—coupled with high finance costs and insufficient government investments in the healthcare sector (Chireshe & Ocran, 2020). Ifeagwu et al. (2021) provide support for this claim, noting that 27 out of 48 countries in sub-Saharan Africa are affected by OOP payments for healthcare services, although countries such as Nigeria and Kenya largely rely on tax-based financing systems for their healthcare sectors (Aregbesola, 2018; Barasa et al., 2018).

In parallel with the traditional tax-based state funding and OOP payment policies in place, most countries in sub-Saharan Africa are increasingly embracing the national health insurance system as a critical mechanism to advance UHC goals (Amu et al., 2022; Cashin & Dossou, 2021). Among others, Benin, Gabon, Ghana, Kenya, Nigeria, Rwanda, Tanzania, and Zambia have introduced national health insurance systems to finance healthcare (Cashin & Dossou, 2021). Although the coverage of social health insurance in sub-Saharan Africa is generally low (Amu et al., 2022), some countries, including Gabon, Ghana, and Rwanda, have extended the policy to cover a significant share of the population (Cashin & Dossou, 2021). Additionally, community-based health insurance

(CBHI), a micro health insurance system targeted at low-income individuals to secure affordable medical care (WHO, 2020), has been practiced by some African countries, including Ghana (Conde et al., 2022).

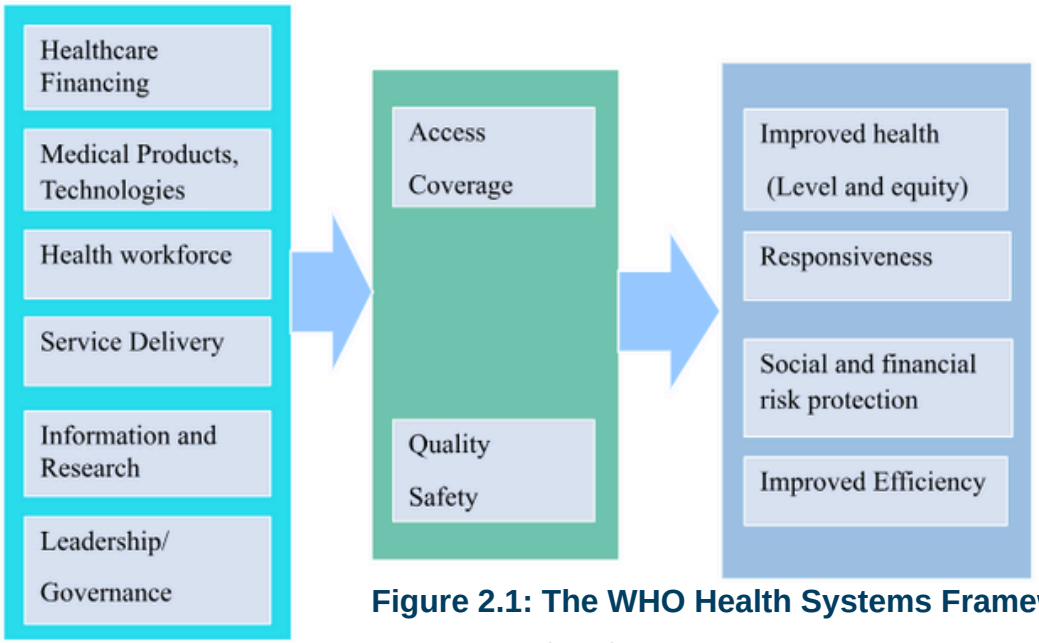


Figure 2.1: The WHO Health Systems Framework

Source: WHO (2007)

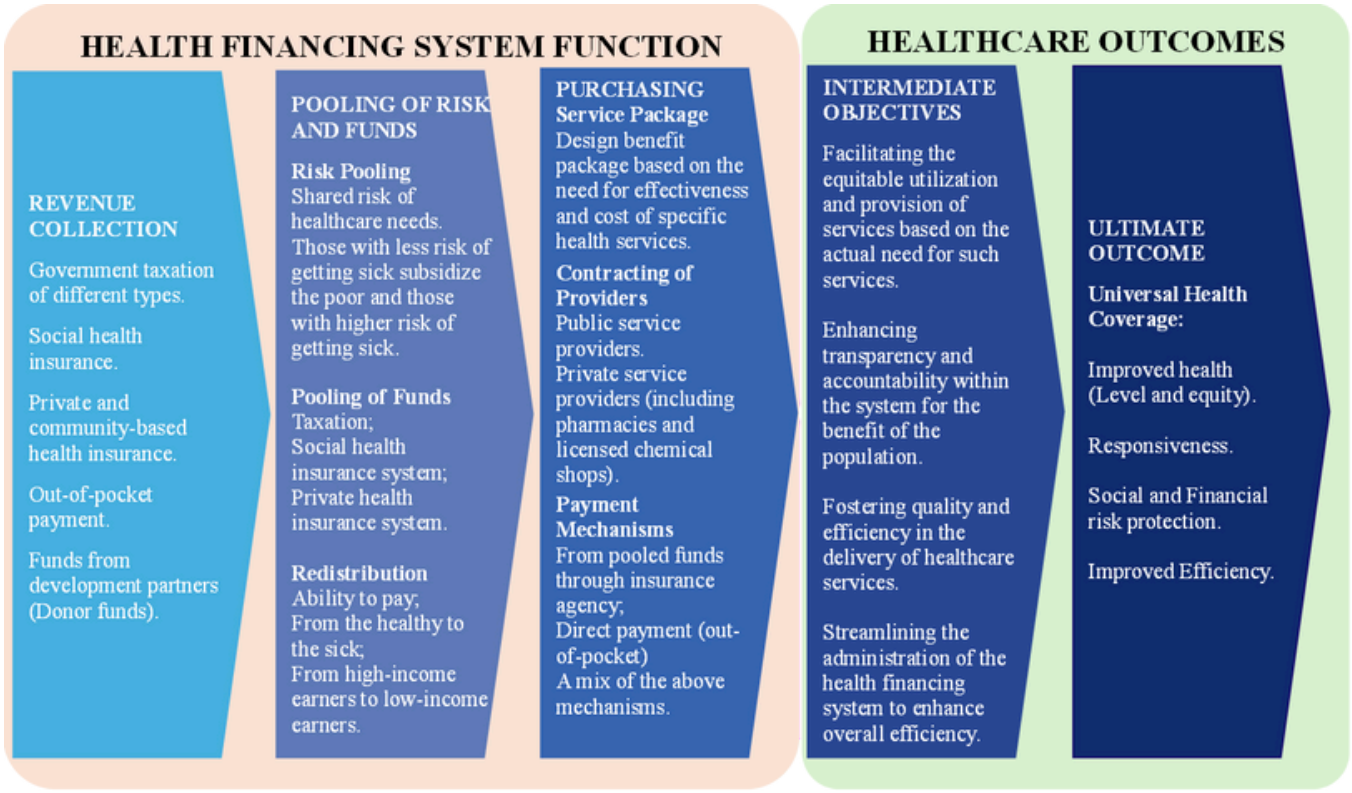


Figure 2.2: Health Financing System and Outcome

Source: Adapted from Myint et al. (2019) and Annear (n.d.)

2.2 Healthcare in Ghana

Table 2.1 presents the historical perspective of healthcare financing policies in Ghana. The evolution of health financing in Ghana traces its roots to the post-colonial era of the 1880s when healthcare operated on a fee-paying basis (Ghana Health Financing Strategy, 2015). Following Ghana's independence in 1957, a shift occurred with the introduction of a free healthcare policy as a strategic element of the country's development. This approach was replaced in 1992 with a full-cost recovery health financing policy known as the “cash and carry” system. However, the “cash and carry” financing policy proved inadequate in addressing the financing challenges within the health supply chain. Consequently, in 2003, Ghana’s government responded by introducing the NHIS to eliminate previous barriers imposed by the “cash and carry” system, aiming to ensure equitable access to healthcare services (Ghana Health Financing Strategy, 2015). The NHIS fund comprises various streams of revenue, including a 2.5% value-added tax imposed on specific goods and services consumed within Ghana, a 2.5% deduction from employees' SSNIT pension fund at the source, annual premium paid into the NHIS fund by individuals and registration fees, returns on investments, and contributions from international donors (Kwarteng et al., 2020). Since its inception in 2004, healthcare in Ghana has largely been financed through the NHIS, complemented by traditional sources such as tax-based financing from the government, private health insurance schemes, contributions from corporate institutions, funds from donors and development partners, and OOP payments. While these financing frameworks have contributed to enhancing the health supply chain in Ghana over the years, it is imperative to assess their capacity to achieve the goals of UHC outlined in SDG 3. Additionally, there is a need to explore alternative financing mechanisms to ensure the sustainability of healthcare services in the country.

Table 2.1: Ghana's Health Financing Policy in Perspective

Year	Policy Type	Funding Mode	Coverage	Challenges
1957	Free health for all	Public	Nationwide	Sustainability problem, Limited to the public sector
1969	User-fees	Partly Public and Individual Payments	Nationwide	Inequity in access to healthcare services
1985	Cash and Carry System	Cost-Sharing and Cash Payments	Nationwide	Inequity in access, High mortality at homes because most people could not afford healthcare
1992	Community-Based Health Insurance Scheme (CBHIS)	Privately Funded	Community Based	Geographic limitations
2004	NHIS	Partly Public and Individual Payments	Nationwide	Sustainability problem, Inadequate funding

Source: Kipo-Sunyehzi et al. (2019)

2.3 Assessing Health Financing Performance

Securing adequate funding required to attain UHC hinges on government priorities and the government's capacity to effectively mobilize domestic resources. The goal of Ghana's health financing system is to ensure equitable, efficient, effective, and sustainable heath financing mechanisms that actively contribute to the attainment of UHC (Ghana Health Financing Strategy, 2015). Consequently, the effectiveness and performance of Ghana's healthcare financing models should be evaluated in light of their capacity to advance the country's health system toward UHC. In this context, the adequacy of financial resource allocation to the health sector serves as a critical measure of the health financing system's effectiveness, as sufficient funding directly impacts the availability of services, accessibility for individuals, and affordability for the population.

Various targets are used to measure the adequacy of healthcare financing for UHC, with notable benchmarks being health expenditure as a percentage of Gross Domestic Product (GDP) and the Abuja 2001 target. The former assesses general government health spending as a percentage of GDP, reflecting a government's commitment to shielding the population from healthcare costs. The 2010 World Health Organization Report states that countries whose entire populations have access to a set of services usually have relatively high levels of pooled funds—in the region of 5–6% of GDP (WHO, 2010). Relatedly, the Commonwealth Medical Association's 2016 Colombo Declaration urged countries to allocate at least 6% of their GDP to healthcare investment. Consequently, governments are expected to invest at least 5% of GDP in health to make strides toward UHC, a target considered effective in holding governments accountable and achieving SDG 3 (McIntyre et al., 2017).

The latter, the Abuja 2001 target, signifies African governments' pledge to allocate at least 15% of total government spending to health (Organization of African Unity, 2001). McIntyre et al. (2017) contend that this target presents a challenge, as demanding a 15% share of government expenditure for the health sector implies potential trade-offs with other economic sectors. Nevertheless, the Abuja 2001 target remains a crucial measure of progress for African Union member states toward achieving UHC (Organization of African Unity, 2001).

3. Methodology

3.1 Empirical Context

The empirical setting of the study is Ghana's health sector. The Ministry of Health is responsible for supervising health organizations in Ghana to provide basic and specialized clinical services, while the Ghana Health Service implements approved national health policies and manages resources available for the provision of health services. Administratively, Ghana's healthcare sector is structured in three levels: national, regional, and district. Health interventions are tailored for each level and dispatched to the corresponding clinics and hospitals. These facilities are categorized into five levels of care: CHPS Zones, Health Centers/Polyclinics, District Hospitals, Regional Hospitals, and Tertiary/Teaching Hospitals. The Christian Health Association of Ghana (CHAG) and private health facilities complement the public sector in delivering healthcare services. Ghana has limited local production of pharmaceuticals, medical equipment, and devices. Consequently, the country relies on imports for approximately 85% of its total healthcare consumption (International Trade Administration Ghana, 2022).

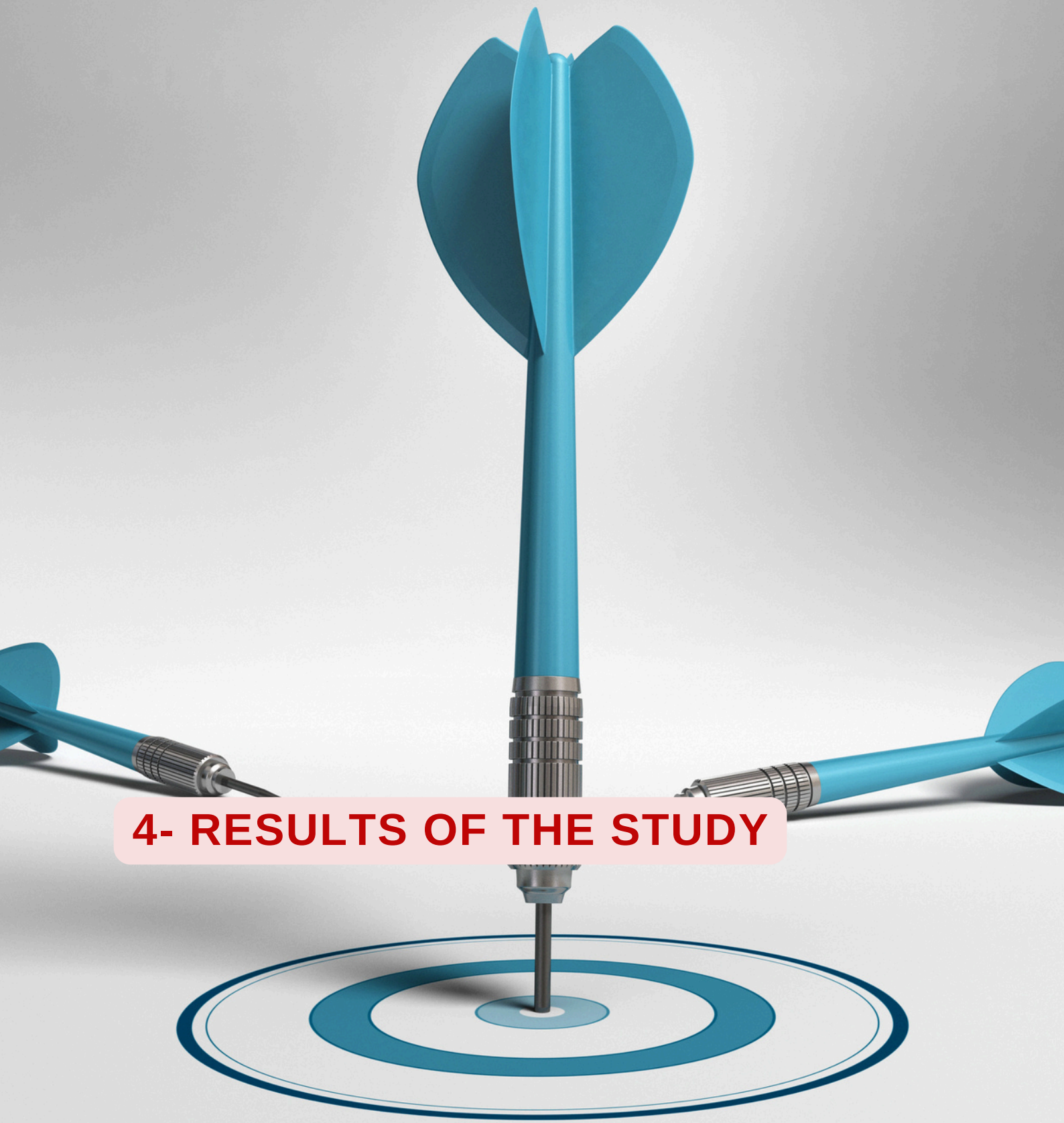
3.2 Design, Sample, and Data Collection

The authors recognized that utilizing a mixed method would offer unique opportunities to gain richer insights to inform policy. Accordingly, a mixed method was used in the study, relying on both primary and secondary data. We relied on financial reports from the Ministry of Health and the World Bank’s database to gather secondary data. In addition, we employed a qualitative approach to collect primary data through interviews. Public health agencies; pharmaceutical firms; and public and private health facilities, e.g., teaching hospitals, district hospitals, and central and regional medical stores in Ghana, were targeted for interviews. We clustered the country into northern, middle, and southern zones. All the northern regions, including the Oti region, constituted the northern zone. The middle zone comprised the Bono, Bono East, Ahafo, Ashanti, and Central regions, while the Greater Accra, Volta, Eastern, Western, and Western North constituted the southern zone. Due to logistical constraints, we selected one senior management member from each facility visited for the interview. In all, we conducted 50 interviews across the zones. Table 4.1 presents the details of the institutions visited. For the secondary data, records on sources of healthcare funding from 2017 to 2022 were extracted from the Ministry of Health’s financial reports while data on healthcare expenditures as percentages of total annual state expenditure and GDP from 2010 to 2022 were extracted from the World Bank’s database. We used descriptive statistics to

analyze the secondary data while data from the interviews was analyzed using a thematic analytic approach.

3.3 Development of Interview Guide

We developed the interview guide using a three-stage approach. First, we reviewed the relevant literature to obtain a deeper understanding of healthcare financing. We generated an interview guide based on the insight from the review. In the second stage, three project advisors and three experienced supply chain scholars and practitioners reviewed the initial interview guide developed and provided inputs to improve the instrument. Finally, we piloted the revised interview guide using seven experienced practitioners in the health sector. Using feedback received from the participants, we slightly modified a few items to improve the clarity of the instrument (see Appendix for the interview guide). The interview required participants to share their experiences with healthcare financing in Ghana and to suggest potential alternative model(s) for sustainable funding for the health supply chain in the country. Each interview session lasted between 40 and 55 minutes.



4- RESULTS OF THE STUDY

4.1 Sample Characteristics

Table 4.1 presents details of sample characteristics. In all, 50 interviews were conducted across 11 institutions in the Ghana health supply chain. All the participants were senior management members of their respective institutions. Of the 50 participants, four were female, representing 8% of the respondents. On average, participants had 14 years' experience at the senior management level.

Table 4.1: Sample Characteristics

S/N	Institution	Frequency	Percentage
1.	MoH	2	4
2.	Ghana Health Service	2	4
3.	Central Medical Store	1	2
4.	Regional Medical Store	4	8
5.	Teaching Hospitals	3	6
6.	Regional Health Directorate	4	8
7.	Regional Hospitals	10	20
8.	District Hospitals/Health Centers	10	20
9.	Pharmaceutical Product Manufacturing Firms	5	10
10.	NHIA	**2**	**4**
11.	Private/CHAG	**7**	**15**
12.	**Total**	**50**	**100**

4.2 Healthcare Financing Mechanisms

1 Healthcare Financing Mechanisms in Ghana

Ghana's health financing system comprises tax-based financing (budgetary allocation from Government of Ghana and Annual Budget Funding Amount from petroleum revenues), the National Health Insurance Scheme, out-of-pocket payments, private health insurance system, and donor funding.

The most popular healthcare financing mechanism in Ghana is the National Health Insurance Scheme with the out-of-pocket payments being the least preferred. Nonetheless, the out-of-pocket payments model provides an immediate source of funding to support healthcare operations.

The study sought to evaluate the mechanisms through which Ghana's health supply chain is funded. The analysis established that healthcare services in Ghana are financed through three primary arrangements: the Government of Ghana's budgetary allocation, Internally Generated Funds (IGF), and funding from donors. Additional insights are provided in Figure 4.5, drawing on the findings of Annear (n.d.).

Government of Ghana (GoG) budgetary allocation: Funding from GoG comes in two forms: the general GoG budget allocation and Annual Budget Funding Amount (ABFA). The general GoG budget allocation primarily covers staff emoluments and goods and services, while ABFA, which is allocated from petroleum revenue, funds specific projects in the health sector.

Internally Generated Funds (IGF): IGF are raised through the following mechanisms: NHIS, out-of-pocket (OOP) payments, and private health insurance systems (including mutual/corporate-based health insurance scheme). Private health insurance systems represent diverse health funding arrangements managed by private entities or groups to augment the public health insurance schemes.

The NHIS was identified as a major financing model in the health supply chain in Ghana. In low-income communities in Ghana, the NHIS contributes over 90% of IGF of most healthcare facilities. OOP payments represent personal health expenditures, involving individuals making direct payments to healthcare providers when accessing services. These payments apply to drugs and services not covered by the health insurance system. IGFs are usually spent on goods and services, employee compensation (non-mechanized staff), and capital expenditure.

Donor Funding: Funding from external agencies and international partners has constituted a significant but varying proportion of healthcare financing in Ghana since 2010. Funds from donors provide direct support to the government, the NHIS, and the Ministry of Health. Donor funding, in most cases, targets specific programs and medical supplies for specific health cases and conditions, such as Human Immunodeficiency Virus/Acquired Immunodeficiency Syndrome, and Tuberculosis.

Philanthropy Support: Philanthropists, including religious groups and individuals, provide occasional financial support to the health supply chain in Ghana. Philanthropic funding, typically not recognized as a consistent source of healthcare financing in Ghana due to its inherent unpredictability, is nevertheless instrumental in supporting diverse areas within the health sector. This form of funding is directed toward financing specific projects such as infrastructure development, procurement of equipment supplies, and other targeted initiatives. In most cases, the philanthropists identify specific areas for funding within a selected facility. The trends for the proportion of funding sources from 2017 to 2022 are shown in Table 4.2, Figure 4.2, and Figure 4.4.

4.3 National Health Insurance Scheme: A Key Financing Mechanism

Our interactions with healthcare providers revealed that the NHIS has demonstrated consistent cash flow reliability to health facilities since its introduction in 2004. It is also recognized as the most affordable and convenient payment mode for the general population. Furthermore, the robustness of the NHIS is evident in its extensive coverage (approximately 54% of nationwide enrollment), making it accessible to individuals from diverse economic backgrounds due to its affordability. This positively influences access to healthcare and encourages regular healthcare utilization. As a result, providers can operate at optimal capacity, while undesirable healthcare practices have reduced

significantly. In general, the NHIS financing scheme is recognized as a reliable revenue source, enhancing healthcare accessibility and fostering improvements in healthcare service quality, making it a critical financing mechanism for attaining UHC.

4.4 Challenges of the National Health Insurance Scheme

Despite notable achievements such as enhanced healthcare accessibility and a reduction in OOP payments in Ghana (Novignon et al., 2019), the NHIS continues to grapple with certain challenges. The findings from the interview session highlight two prominent challenges linked to the NHIS: delays in claim payments and insufficiently low tariffs for most healthcare services and drugs. Notably, instances were identified where it takes an extended period, ranging from five to nine months, to receive payments from the National Health Insurance Authority. Figure 4.1 presents the central perspectives of participants.

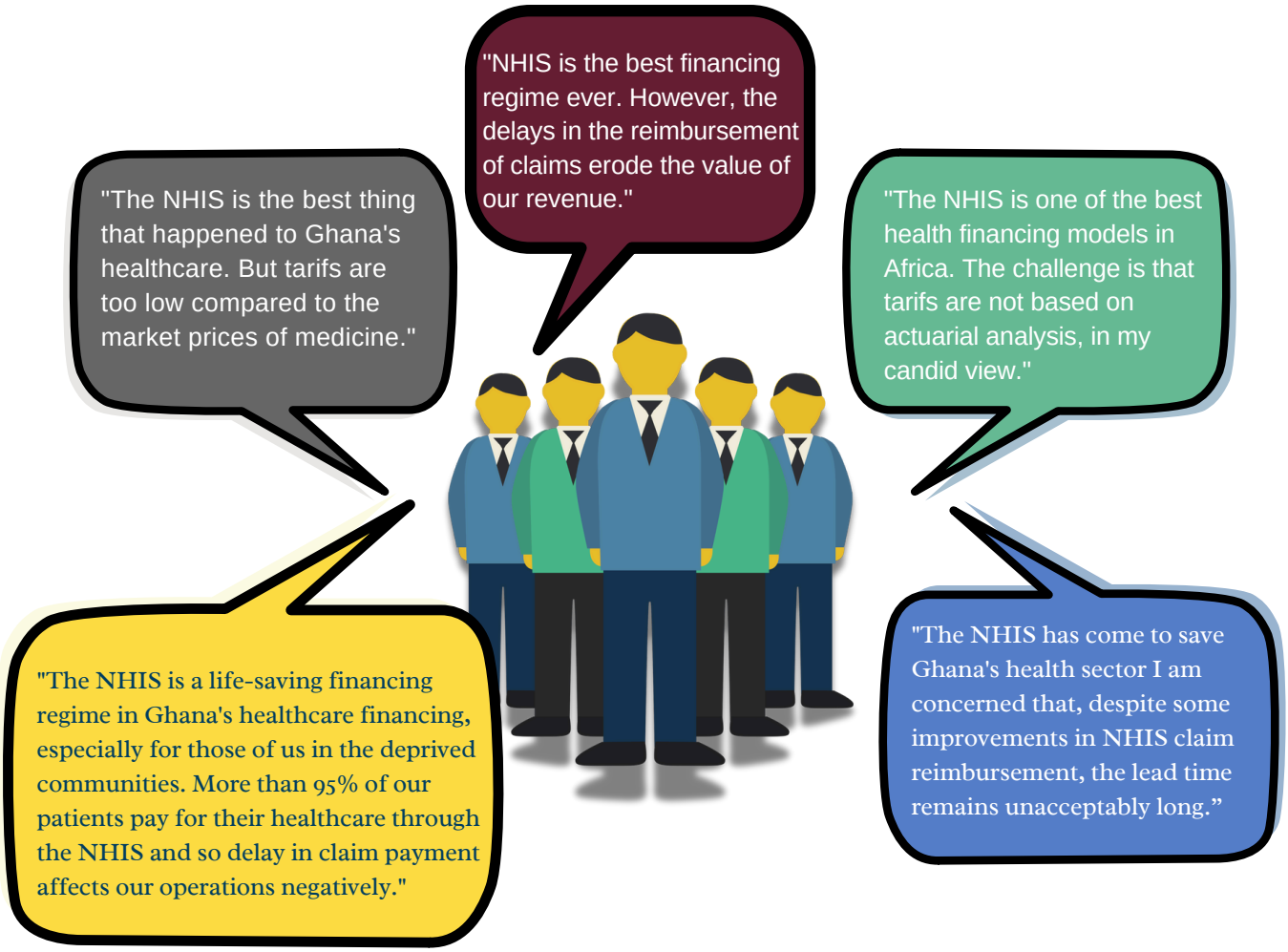


Figure 4.1: Participants' Perceptions of the NHIS

4.5 Trends in Health Financing

The health budget has consistently increased over the years, particularly between 2017 and 2022. Between 2017 and 2022, the health budget increased from GHSM 4,226,152,354 to GHSM 10,996,595,000. This was in large part due to the noticeable jump in 2020, when the budget reached GHSM 6,587,092,478, compared with GHSM 6,037,506,718 in 2019, suggesting a more concerted effort to allocate additional funds for healthcare. The most substantial increase in the health budget occurred between 2021 and 2022, when the budget rose from GHSM 8,533,590,233 in 2021 to GHSM 10,996,595,000 in 2022, further indicating a significant boost in health financing during this period. Table 4.2 and Figures 4.2, 4.3, and 4.4 show details of the health sector budget and actual expenditure.

Table 4.2: Ghana's Health Sector Budget and Expenditure by Source, 2017–2022

Year	Source of Funds	Budget (GHSM)	Actual (GHSM)	% By Source
2022	GoG	6,461	5,454	84%
	IGF	2,948	1,049	16%
	ABFA	32	1	0.001%
	Donor	1,304	4	0.001%
	TOTAL	**10,746**	**6,509**	**100%**
2021	GoG	5,292	7,661	71%
	IGF	2,328	2,017	19%
	ABFA	32	11	0.001%
	Donor	881	1,137	11%
	TOTAL	**8,534**	**10,826**	**100%**
2020	GoG	5,871	5,406	73%
	IGF	1,931	1,064	14%
	ABFA	57	42	1%
	Donor	993	860	12%
	TOTAL	**8,852**	**7,371**	**100%**
2019	GoG	3,421	3,933	60%
	IGF	1,773	1,553	24%
	ABFA	48	1,047	16%
	Donor	796	47	1%
	TOTAL	**6,038**	**6,580**	**100%**
2018	GoG	2,613	3,421	59%
	IGF	1,345	1,773	31%
	ABFA	50	21	0.001%
	Donor	414	548	10%
	TOTAL	**4,422**	**5,763**	**100%**
2017	GoG	2,480	3,425	62%
	IGF	977	1,039	19%
	ABFA	50	7	0.001%
	Donor	719	1,040	19%
	TOTAL	**4,226**	**5,511**	**100%**

Note: GHSM= Ghana Cedis in Millions.
Source: Ministry of Health Report [1]

[1] Ministry of Health (n.d.). Annual Programme of Work. Available at: Annual Programme of Work - Ministry Of Health (moh.gov.gh).

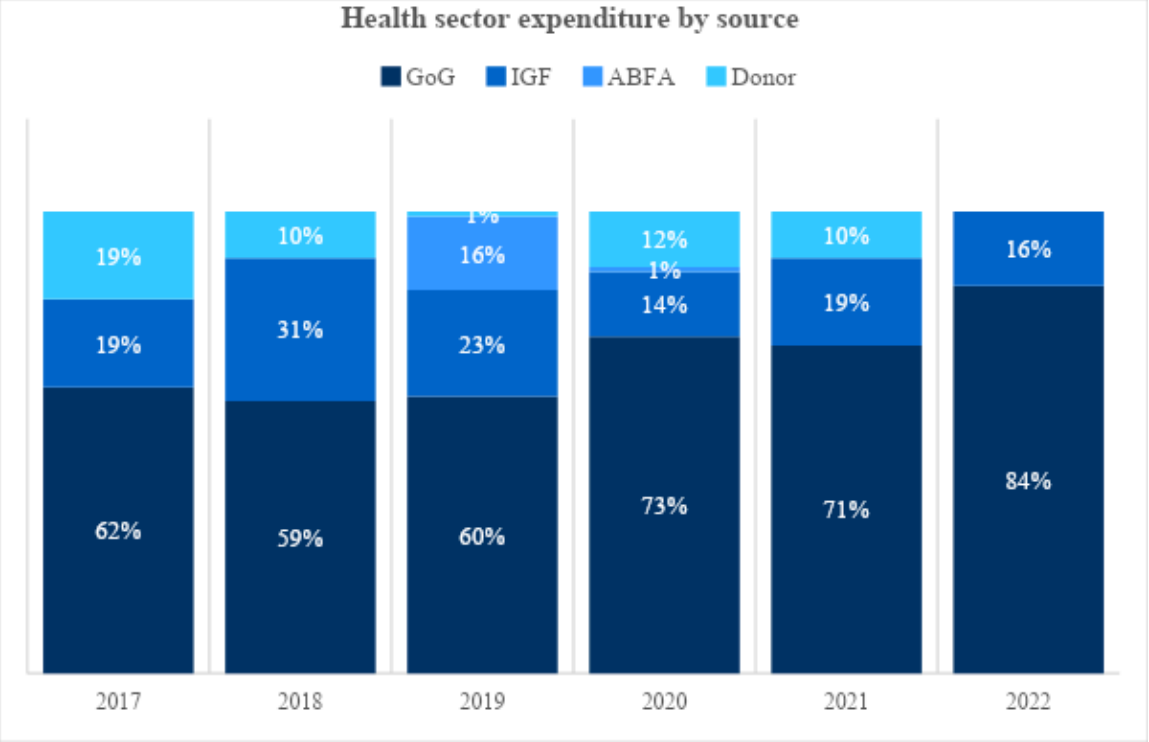


Figure 4.2: Health Sector Expenditure by Source, 2017–2022

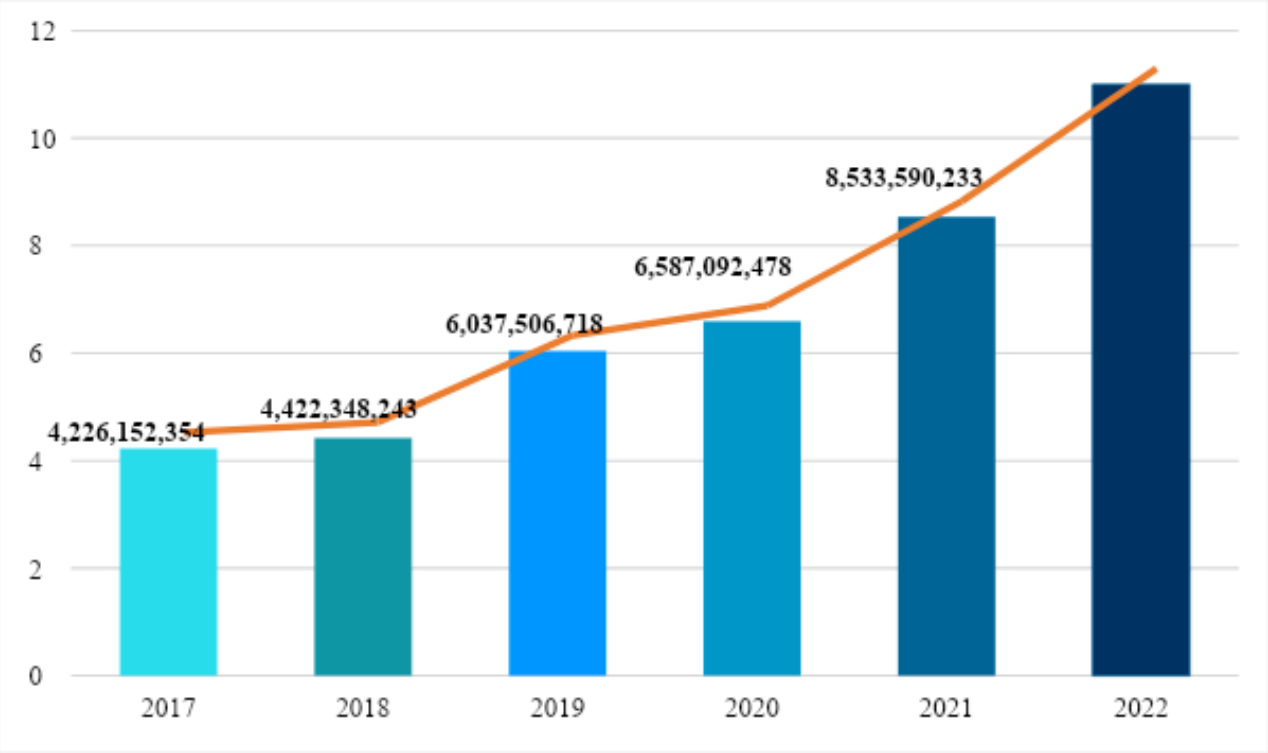


Figure 4.3: Health Budget Trends, 2017–2022

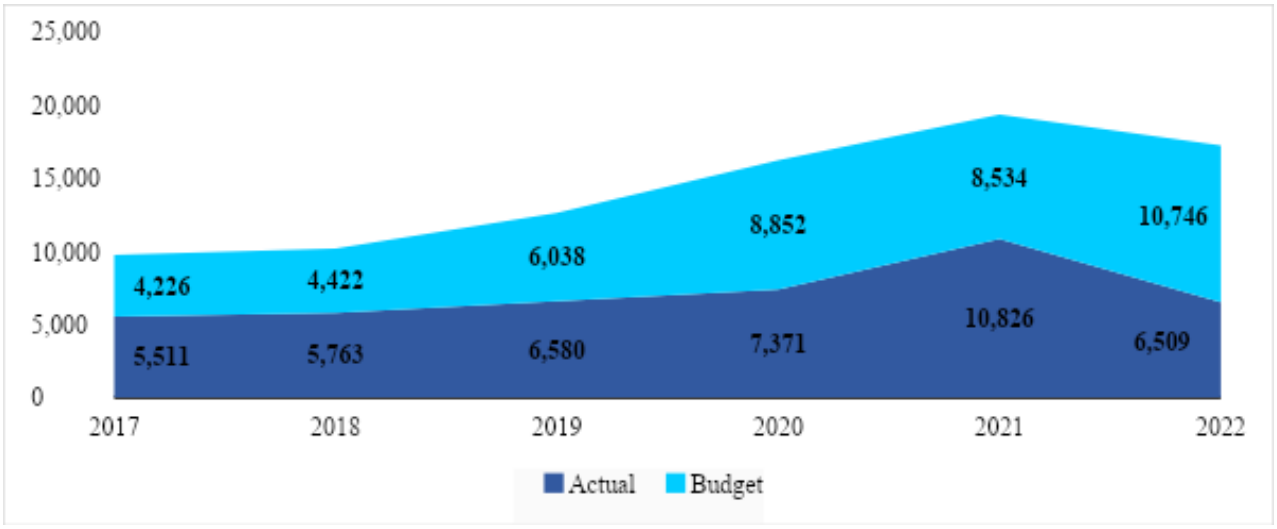


Figure 4.4: Budgeted and Actual Health Expenditures from 2017 to 2022

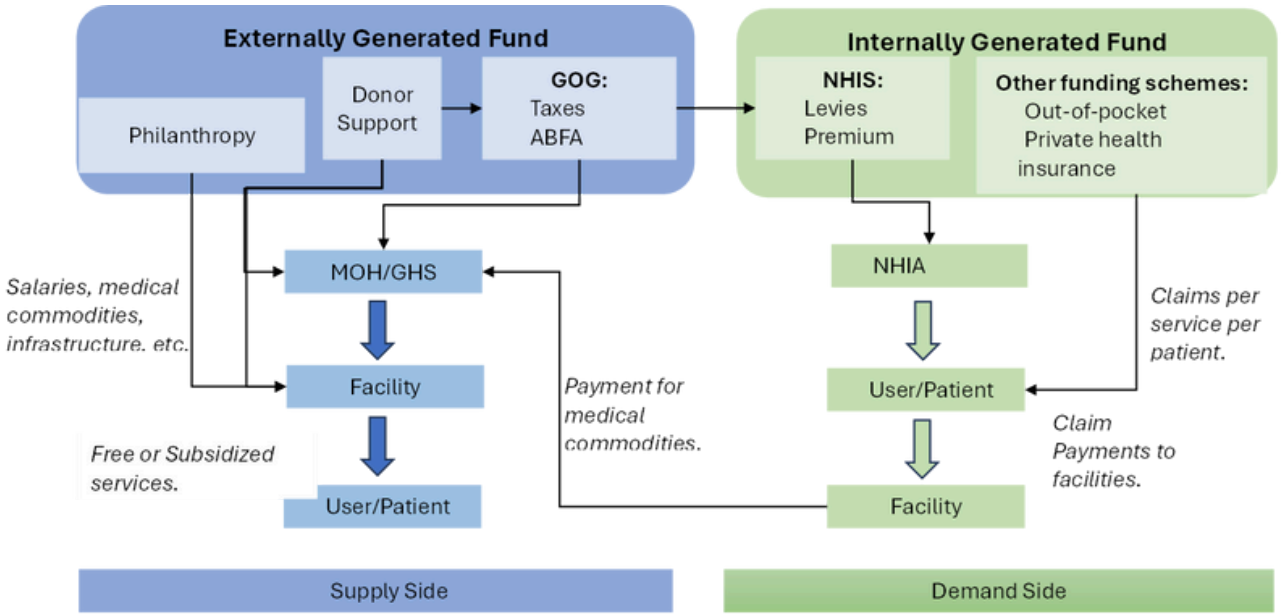


Figure 4.5: Health Financing Mechanisms in Ghana

4.6 Financing Gap in the Health Sector

2 Financing Gap in the Health Sector

Despite significant progress in healthcare financing over the past two decades, Ghana's health supply chain still faces a consistent financing gap relative to the minimum benchmarks of WHO's expenditure target of 5% of GDP and the Abuja 2001 declaration's target of health expenditure constituting 15% of total government expenditure. From the GDP perspective, records indicate an annual funding deficit averaging 1.08% of GDP within the health sector from 2010 to 2022. In terms of total government expenditure, the trend shows an average funding gap of 6.62% annually during the same period, falling below both the Abuja 2001 target and WHO guidelines. This highlights the critical need for Ghana to prioritize healthcare financing to achieve these objectives and reach the UHC goal.

A deficit in the healthcare financing not only hinders healthcare services at the facility level but also limits and frustrates Ghana's efforts in ensuring quality healthcare services and progress toward attaining UHC. The Ghanaian government indicated its commitment to achieving the UHC goal by 2030, as outlined in the Ministry of Health's Mid-Term Development Plan (2022–2025). To achieve this goal, the government is expected to meet the Abuja 2001 target, which enjoins all African governments to allocate 15% of the yearly national budget to the health sector or, at least, spend 5% of GDP on health annually per the guidance stipulated in the WHO report in 2010. In the context of UHC, a country's healthcare expenditure below these benchmarks signifies a potential gap in healthcare financing. Such a gap compromises a quality healthcare system and undermines government efforts to achieve UHC.

This analysis reveals a funding gap in Ghana's health sector as indicated in Tables 4.3 and 4.4, and in Figures 4.6 and 4.7. The financing gap exhibits a fluctuating pattern from 2010 to 2022, in terms of both the percentage share of GDP and total government expenditure. In 2010, a financing gap of 0.8% of GDP was documented. This figure rose to 1.7% in 2017 but subsequently declined to 1.4% in 2022. This trend highlights an annual funding deficit averaging 1.08% of GDP within the health sector from 2010 to 2022. Regarding the percentage share of total government expenditure (i.e., the Abuja 2021 target), the financing gap fluctuated between 2010 and 2022, averaging 6.62% during this period.

Our interactions with healthcare providers offer more insight into health financing, corroborating the financial resource inadequacies within Ghana's health supply chain. Figure 4.8 and Table 4.5 present responses from a section of participants, which exhibit a consistent pattern across various facilities, suggesting a cohesive perspective. These extracts generally depict the overarching sentiments of key participants regarding funding challenges. This convergence in responses underscores the uniformity in the perceptions expressed, thereby contributing to a more holistic understanding of the participants' perspectives across the different settings.

Table 4.3: Health Expenditure as a % of GDP

Year	Health Expenditure as a % of GDP	5% of GDP Target	Financing Gap
2010	4.2%	5%	0.8%
2011	4.7%	5%	0.3%
2012	4.0%	5%	1.0%
2013	4.6%	5%	0.4%
2014	4.0%	5%	1.0%
2015	4.5%	5%	0.5%
2016	3.4%	5%	1.6%
2017	3.3%	5%	1.7%
2018	3.4%	5%	1.6%
2019	3.4%	5%	1.6%
2020	3.9%	5%	1.1%
2021	3.9%	5%	1.1%
2022	3.6%	5%	1.4%

Source: The World Bank Report, 2000-2020 [2]

Table 4.4: Health Sector Expenditure as a % of the Government Expenditure

Year	MTEF's Share of the Health Sector	Abuja's Target	Trend of Financing Gap per Abuja's Target
2010	7.4%	15%	7.6%
2011	9.3%	15%	5.7%
2012	7.6%	15%	7.4%
2013	9.9%	15%	5.1%
2014	10.6%	15%	4.4%
2015	7.0%	15%	8.0%
2016	6.8%	15%	8.2%
2017	6.5%	15%	8.5%
2018	6.6%	15%	8.4%
2019	8.1%	15%	6.9%
2020	9.0%	15%	6.0%
2021	6.6%	15%	8.4%
2022	7.6%	15%	7.4%

[2] The World Bank Report (2024). Current health expenditure (% of GDP). Available at: Current health expenditure (% of GDP) | Data (worldbank.org)

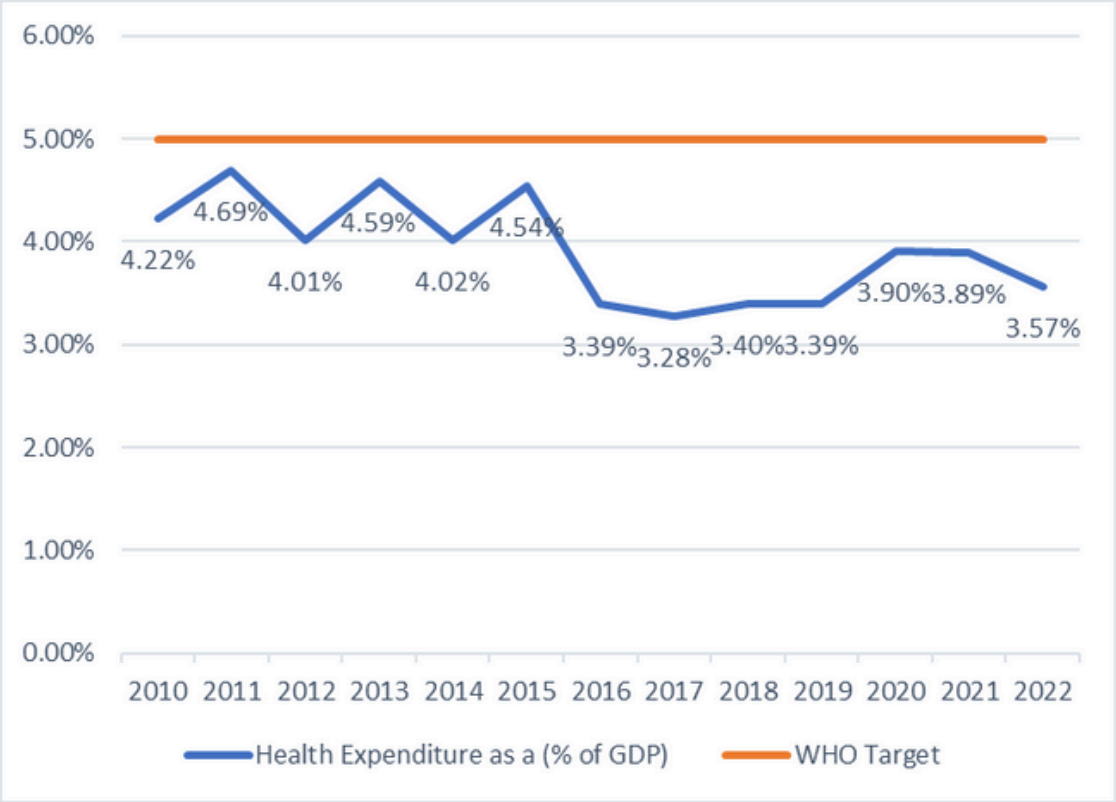


Figure 4.6a: Health Expenditure as a % of GDP

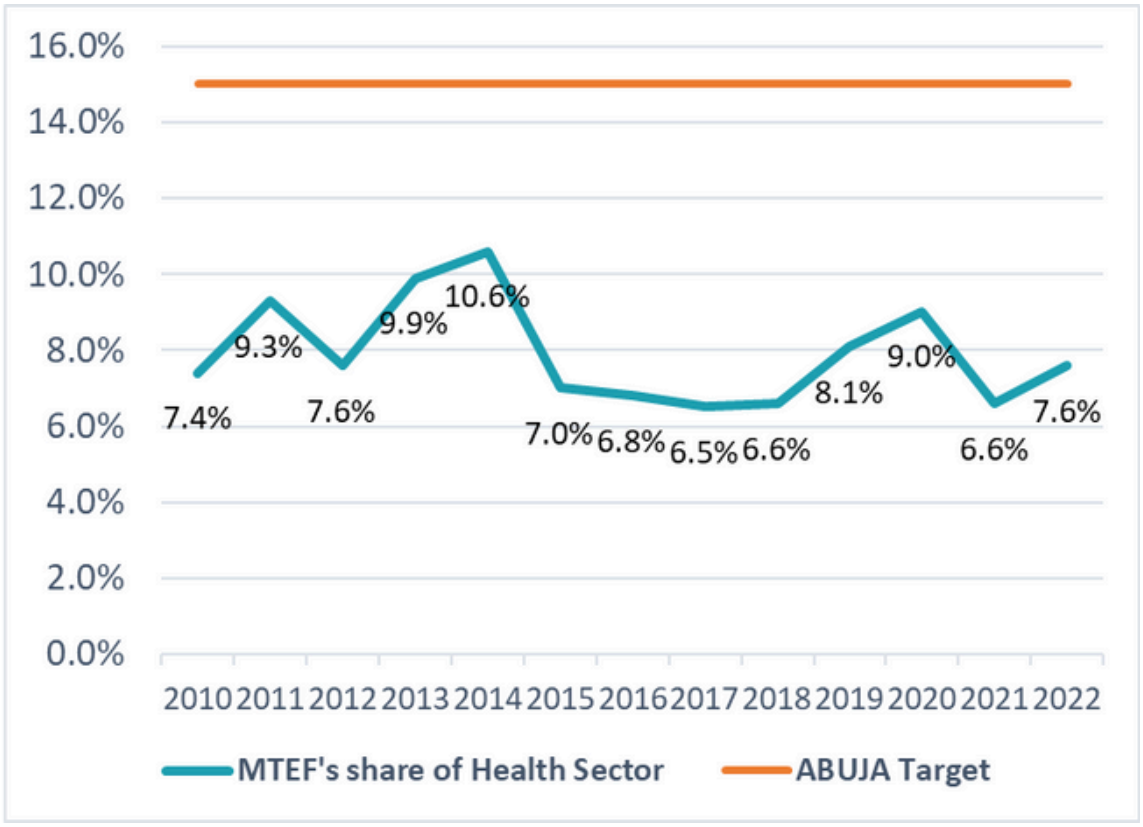


Figure 4.6b: Health Expenditure as a % of GoG Expenditure

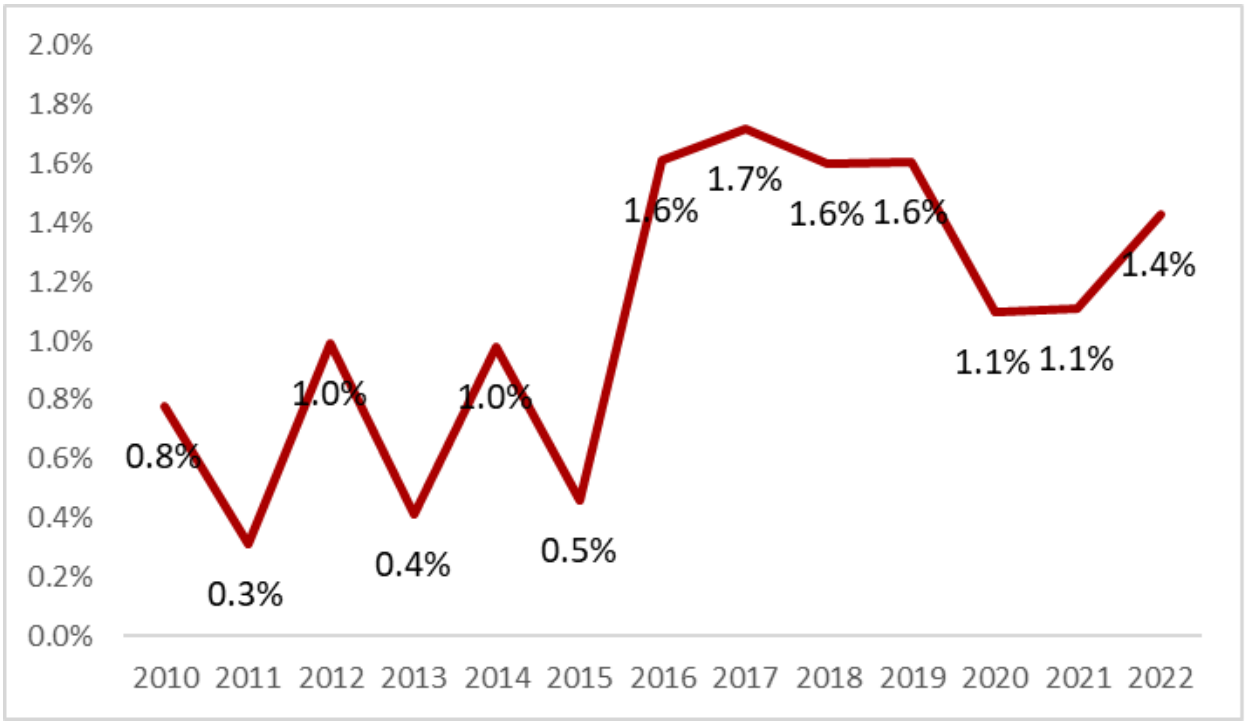


Figure 4.7a: Trend of Financing Gap (per 5% of GDP Target)

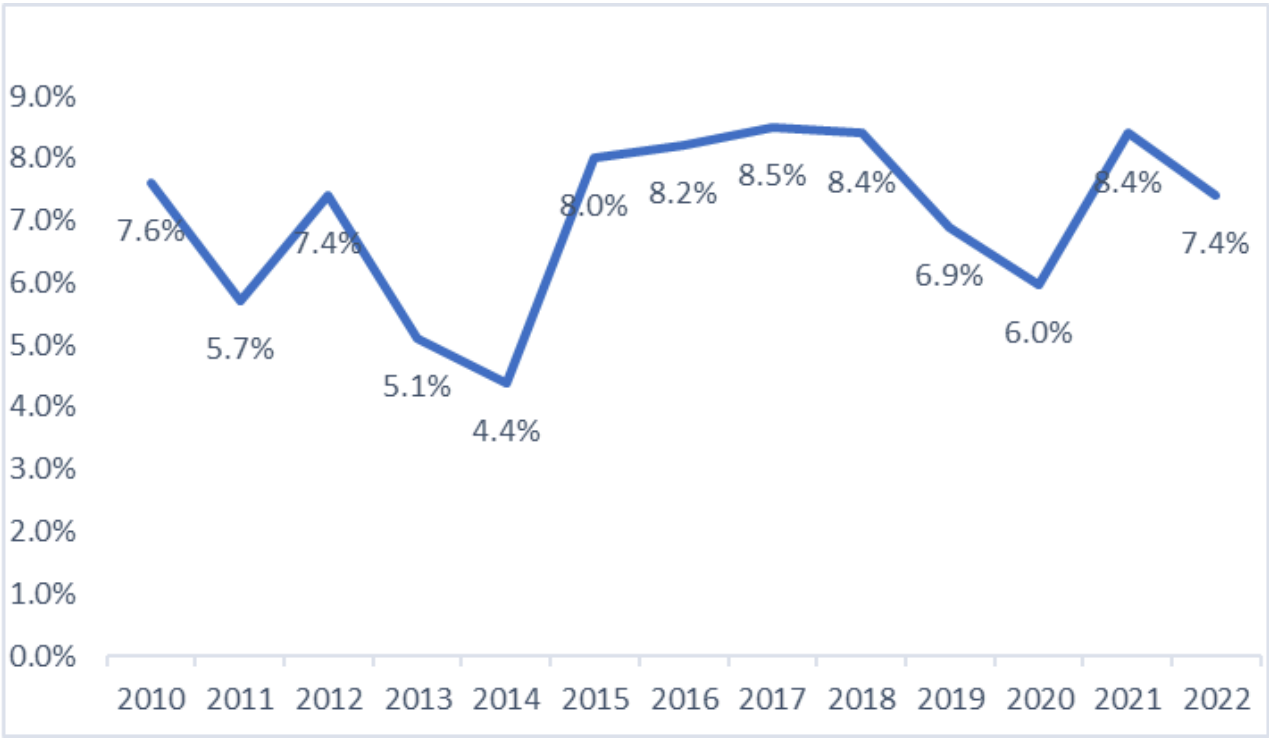


Figure 4.7b: Trend of Financing Gap (per Abuja 2001 Target)

Figure 4.8: Participants' Views on Healthcare Financing Challenges

Table 4.5: Responses from a Cross-Section of Participants

No	Responses from participants
1.	"If NHIA delays in paying the facilities, it affects our operations negatively because the pharmaceutical industry largely depends on these facilities."
2.	"We have difficulties financing our operations. Paying our non-mechanized staff is a big challenge for us."
3.	"The NHIS tariffs should be reviewed to reflect the prevailing economic conditions."
4.	"Patients sometimes have to purchase drugs on prescription due to non-availability of drugs."
5.	"Funds allocated to the health sector are inadequate—I don't know if I should add woefully."
6.	"We abhorred co-payment [requiring NHIS-subscribed patients to pay for services covered under the NHIS] but are now compelled to do so for the survival of their facilities."
7.	"The NHIS greatly benefits our rural communities where many residents have low incomes, as it offers them an alternative to out-of-pocket payments, which they often cannot afford. Our operations are primarily financed through [the] NHIS, and we would greatly appreciate any improvements in tariffs to enhance healthcare services to our community"
8.	"Undoubtedly, the NHIS serves as the main revenue source for our operations. But delays in reimbursing claims and low NHIS medicine tariffs are seriously crippling our operations and the quality of healthcare provided to our patients."
9.	"The NHIS tariffs are too low and unrealistic that they do not reflect prevailing economic conditions, and this undermines our operations."
10	"I would say the NHIS was undoubtedly established as a vital rescue mission to bolster the Ghanaian healthcare sector, significantly improving access to healthcare for citizens. However, the persistent issue of low tariffs poses a significant concern for us."

4.7 Donor Funding and Dependency

3 Donor Dependency

Ghana's healthcare financing records indicate varying levels of support from donor agencies and development partners over the years, with an average of 16% funding support between 2010 and 2022. There is a trend of reduced reliance on donor funding for healthcare from 2018-2022. The pattern shows Ghana's subtle transition to becoming less donor-dependent in financing healthcare. However, a sustainable self-financing system would require Ghana to demonstrate prudence, effective financial management, and accountability in the existing health financing regime.

Funding from donors has exhibited notable variations between 2010 and 2022. In 2010, donor funding constituted 23% of the total health expenditure, a figure that saw a modest increase to 27% in 2012 and then declined to 6% in 2013. Subsequently, between 2014 and 2016, there was a significant increase from 23% to 28% then a steady decline to 1% in 2019. In 2020, donor support increased again, to 12%, but further declined to less than 1% in 2022. This oscillating trend underscores the dynamic nature of financial support from the donor community. This insight indicates that Ghana's healthcare financing system has experienced varying dependency on donors, with an average of 16% funding support between 2010 and 2022. The trend highlights a pattern of reduced reliance on donor support since 2018, as shown in Table 4.6 and Figure 4.9.

While donor funding has had a significant impact on Ghana's health financing over the years, a move from donor dependency to a self-financing system through innovative and sustainable funding strategies from domestic resources is imperative, considering that Ghana's current status as a lower-middle-income economy makes it less eligible to receive concessional aid going forward (Mao et al., 2021). In this regard, the government's policy on "Moving Ghana Beyond Aid" (World Bank, 2018) should be seen as an important initiative that should drive the country into self-financing in the healthcare sector. However, such an ambitious initiative would require prudent management of resources. In the context of healthcare financing, efficient financial management and accountability in the existing health financing model is critical as Ghana transitions to becoming less donor-dependent in healthcare financing.

Table 4.6: Trend of Donor Funding 2010–2022

Year	Donor Fund	Total Health Expenditure	Percentage of Donor Funding
2010	318.6	1,416.0	23%
2011	408.5	1,805.3	23%
2012	624.0	2,287.5	27%
2013	194.5	3,529.4	6%
2014	781.3	3,353.7	23%
2015	798.1	3,153.6	25%
2016	933.2	3,366.7	28%
2017	1,039.5	5,510.9	19%
2018	548.0	5,763.0	10%
2019	47.3	6,580.1	1%
2020	859.6	7,371.1	12%
2021	1,137.2	10,825.6	11%
2022	4.3	6,508.7	0.001%

Source: Ministry of Health Reports, 2010-2022 [3]

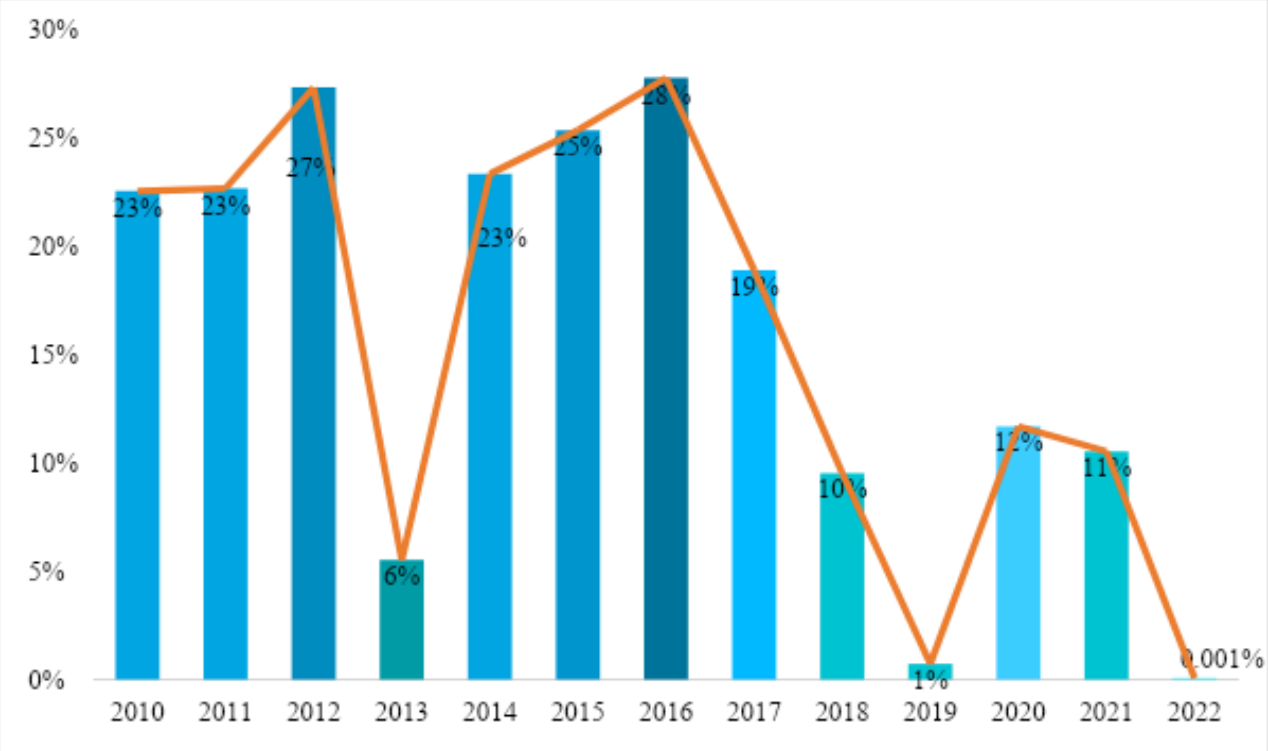


Figure 4.9: Trend and Donor Dependency

[3] Ministry of Health (n.d.). Annual Programme of Work. Available at: Annual Programme of Work - Ministry Of Health (moh.gov.gh)

4.8 Alternative Healthcare Financing Mechanisms

4 Alternative Healthcare Financing Mechanisms

Based on feedback from respondents, we recommend that Ghana formulates a policy initiative for extending the National Health Insurance Scheme through the introduction of discretionary premium categories (Basic, Comfort, Premium), encompassing a spectrum of healthcare services from basic to special cases. Additionally, the country should strengthen and leverage private and mutual health insurance systems as innovative financing models, aiming to enhance the healthcare financing framework for sustainable progress toward achieving Universal Health Coverage.

Many countries, particularly in Africa, are increasing investments in initiatives and reforms to enhance health outcomes, accelerating strides toward achieving UHC. The commitment of African governments to prioritize healthcare has been demonstrated at the continental level through significant actions, including the 2001 Abuja Declaration to increase government funding for healthcare, the 2006 Addis-Ababa Declaration on community health in the African Region, and the 2008 Ouagadougou Declaration on primary healthcare and health systems in Africa (World Health Organization, 2013). A sustainable healthcare financing system is critical to translating these commitments into results.

Ghana is actively striving to establish sustainable healthcare financing models as part of its initiatives toward UHC by 2030. Ghana's NHIS, for example, has significantly reduced the catastrophic OOP payment model and improved Ghana's health supply chain financing. Despite notable progress, Ghana remains below the Abuja 2001 target, necessitating an increase in health investments to achieve UHC goals. To this end, exploring alternative financing models to augment the existing ones is imperative.

Feedback from a diverse pool of respondents within various facilities has illuminated two predominant themes concerning alternative funding strategies in the health supply chain. The first proposed alternative healthcare financing model has to do with diversifying the NHIS by incorporating various categories of premium packages. This (seemingly ambitious) approach aims to introduce flexibility and be sensitive to a broader spectrum of healthcare needs. Expanding the options available under the NHIS could establish a more inclusive and responsive financing model.

The second healthcare financing option proposed highlights the importance of bolstering private, community, and religion-based health insurance systems. The emphasis here is on improving the efficiency of the private health insurance space to boost revenue

and foster the pooling of financial resources. Strengthening these private health insurance avenues is seen as a strategic move to complement existing frameworks and create a more robust foundation for sustainable healthcare financing. These proposals not only seek to address immediate funding challenges but also aim to establish a comprehensive and adaptable healthcare financing framework that can evolve with the dynamic nature of healthcare needs. The integration of diverse premium packages and the rejuvenation of private health insurance systems are considered as strategic and innovative steps toward achieving a resilient and sustainable healthcare financing landscape.

4.8.1 Expanding the NHIS

Extending the existing NHIS to include categories of premiums to cover special diseases and cases was proposed as a financing model for policy consideration. These additional packages, optional to individuals, are expected to cover diseases not currently covered under the existing NHIS and to improve the financial resource pool if implemented. The categories of packages suggested include the following:

Basic: This package offers good benefits with low premiums. The package offers mandatory coverage for all people. (This package is already covered under the existing NHIS model.)

Comfort: This package offers enhanced benefits with moderate premiums. The package covers medical cases and conditions not included in the basic package.

Premium: This package offers special benefits with special premiums. The package covers special medical cases and treatment not included in the basic package.

The extended packages may be managed either solely by the government through the Ghana Health Service and National Health Insurance Authority or by a special arrangement through a partnership with the private sector.

4.8.2 Private Insurance Schemes

Private health insurance may also include corporate-based financing schemes and community/religion-based mutual health schemes. While private insurance systems already exist in various forms, practitioners were of the view that Ghana needs to focus more attention on these models of healthcare financing, given the potential within that space. An efficient and robust private health insurance system would improve healthcare providers' access to financial resources and reduce the uncertainty and stress of long waiting times for reimbursement from the NHIS. Also, private health insurance packages can provide coverage for medical cases, specialist drugs, and treatments not covered under the NHIS due to budgetary constraints. Depending on the arrangement, individuals who sign onto a private health insurance system can choose a wide range of benefits, from basic healthcare to specialist treatment and from partial to full reimbursement of costs. The proposed financing models are expected to augment the existing funding

mechanisms toward long-term sustainable health supply chain financing, where facilities can provide quality healthcare services to position Ghana on a trajectory toward UHC.

4.8.3 Potential Challenges Associated with the Proposed Alternative Healthcare Financing Mechanisms

The suggested financing models have potential implementation challenges that demand policy attention. These include affordability concerns, potential perception of discrimination in the delivery of healthcare, and complexities in managing the diverse packages within the NHIS.

Affordability Concerns: *Poorly regulated premiums can become costly, making healthcare inaccessible for certain individuals and families.*

Perception of Discrimination in Healthcare: *Introducing distinct packages in the NHIS may be seen as discriminatory, potentially dampening stakeholder backing.*

Complexities in Managing the Models: *The complexity involved in managing the proposed healthcare financing system, particularly with diverse NHIS packages, may pose implementation challenges.*

4.8.4 Addressing Potential Challenges of the Proposed Healthcare Financing Initiatives

Securing the support of key stakeholders and gaining public backing are essential components for the successful implementation and long-term viability of proposed financing schemes. To ensure the proposed model's feasibility and garner the necessary backing, the government, through the Ministry of Health and Ghana Health Service, must actively involve key healthcare stakeholders to make inputs toward developing the policy. These may include leadership of health facilities, pharmaceutical operators, the National Insurance Commission, insurance brokers, experts, community leaders, and religious leaders.

Additionally, effective collaboration with private health insurance providers is crucial. The government should establish a supportive regulatory framework that fosters the efficient and equitable operation of private health insurance providers within the proposed financing models. This involves creating clear regulatory guidelines, monitoring compliance, and enforcing policies to safeguard consumer interests.

Civil society organizations should actively be engaged and serve as watchdogs, advocating for transparent and fair regulations that prioritize consumer protection. Moreover, the government can leverage the positive influence of these organizations and the National Commission for Civic Education to raise public awareness and interest through public education about the significance of the proposed financing models. Emphasizing benefits such as enhanced accessibility and improved health outcomes, this collaborative effort can contribute to a broader understanding and acceptance of the proposed financing schemes.

5. IMPLICATIONS FOR POLICY

Understanding Ghana's health supply chain financing framework is crucial for policy decisions regarding sustainable health financing strategies. Countries need to reduce the catastrophic OOP payments to the barest minimum (WHO, 2022) to achieve the UHC goal. The identified health supply chain financing gaps in Ghana present crucial practical and policy implications for the country's healthcare financing system.

First, the fluctuating pattern of the health supply chain financing gap in Ghana from 2010 to 2022, in terms of percentage of both GDP and total government expenditure, underscores the need for pragmatic interventions and policy adjustments if Ghana is to achieve the UHC goal by 2030. In practice, this places a responsibility on the government to uphold its commitment to the Abuja 2001 target by progressively increasing the budget allocations to the health sector to, at least, meet the Abuja 2001 target. It also emphasizes the importance of moving away from over-reliance on OOP payments to more innovative and sustainable healthcare financing approaches, a crucial initiative for reducing the health financing gap in Ghana.

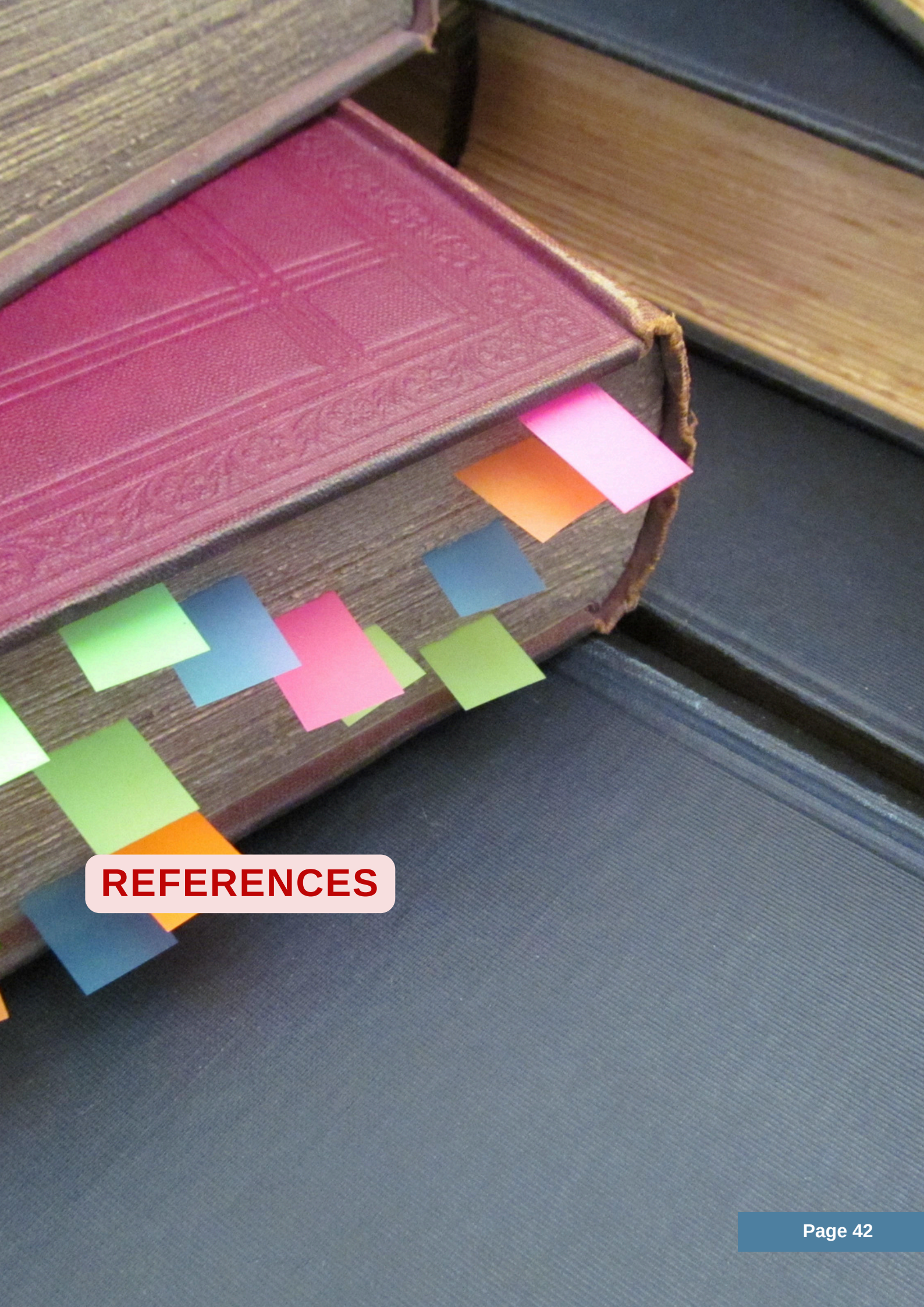
Additionally, transparency and accountability measures should be reinforced to ensure that allocated funds are utilized effectively and reach the intended beneficiaries. Thus, addressing the health supply chain financing gap in Ghana calls for a multi-faceted approach involving sustained government commitment, collaboration with all stakeholders within the health ecosystem, and the implementation of targeted policies to advance progress toward UHC.

Our findings further underscore the critical role of the NHIS as the most reliable funding model that provides a consistent cash flow for Ghana's health supply chain financing. Policy decisions need to prioritize the sustainability and enhancement of the NHIS financing model in the country. This requires continued efforts from the policy side and relevant establishments to increase enrollment to expand coverage, improve premium collection strategies, and make sufficient and efficient allocation of funds to healthcare providers. It will also require the healthcare policy-making authorities to address operational inefficiencies by leveraging accounting information systems and state-of-the-art technologies, such as the Ghana Integrated Logistics Management Information System (GhILMIS) to build a resilient health financing regime. These technological enablers can empower managers and practitioners within the healthcare ecosystem to optimize resource allocation, and track transactions in real time to enhance transparency, deter corruption, and ultimately minimize costs. Additionally, using accounting information systems can facilitate effective monitoring and auditing, promoting accountability and trust in the healthcare financing system.

Furthermore, the government, through the Ministry of Health and Ghana Health Service, needs to explore strategies to further diversify funding sources from the NHIS to enhance the financial resource pooling and secure sustainable financing systems that foster accelerated progress toward UHC. To this end, and as the findings indicate, incorporating

additional premium packages into the existing NHIS warrants policy consideration and attention. It also calls for exploring and deepening public-private partnerships to boost revenue generation. This involves leveraging innovative financing strategies, including revitalizing private, community, and religious-based health insurance schemes to complement the existing domestic funding mechanisms and reduce reliance on OOP payments.

Finally, donor funding and continued collaborations with foreign development agencies have been crucial in advancing the health supply chain in Ghana over the years. While recognizing the importance of funding support from donors, and the need for continuous collaboration with foreign development partners, achieving sustainable progress toward SDG 3 necessitates a crucial shift toward self-financing. In this regard, the government is encouraged to give effect to the "Ghana Beyond Aid" agenda through deliberate investments in the health sector.



REFERENCES

Addi, B., Doe, B., & Oduro-Ofori, E. (2022). Towards quality primary health care: the dilemma of community-based health planning and services (CHPS) in health service provision in Ghana. Journal of Health Organization and Management, 36(4), 482-502.

Agyepong, I. A., Abankwah, D. N. Y., Abroso, A., Chun, C., Dodoo, J. N. O., Lee, S., ... & Asenso-Boadi, F. (2016). The "Universal" in UHC and Ghana's National Health Insurance Scheme: Policy and implementation challenges and dilemmas of a lower middle-income country. BMC Health Services Research, 16(1), 1-14.

Akweongo, P., Chatio, S. T., Owusu, R., Salari, P., Tedisio, F., & Aikins, M. (2021). How does it affect service delivery under the National Health Insurance Scheme in Ghana? Health providers and insurance managers perspective on submission and reimbursement of claims. PLoS One, 16(3), e0247397.

Amu, H., Dickson, K. S., Adde, K. S., Kissah-Korsah, K., Darteh, E. K. M., & Kumi-Kyereme, A. (2022). Prevalence and factors associated with health insurance coverage in urban sub-Saharan Africa: Multilevel analyses of demographic and health survey data. PLos One, 17(3), e0264162.

Annear, P. (n.d.). Principles of health care financing. Available at: https://www.futurelearn.com/info/courses/health-systems-strengthening/0/steps/57273.

Aregbeshola, B. S. (2018). A tax-based, non-contributory, health-financing system can accelerate progress toward universal health coverage in Nigeria. MEDICC Review, 20, 40-45.

Ayanore, M. A., Pavlova, M., Kugbey, N., Fusheini, A., Tetteh, J., Ayanore, A. A., ... & Groot, W. (2019). Health insurance coverage, type of payment for health insurance, and reasons for not being insured under the National Health Insurance Scheme in Ghana. Health Economics Review, 9, 1-15.

Barasa, E., Nguhiu, P., & McIntyre, D. (2018). Measuring progress towards sustainable development goal 3.8 on universal health coverage in Kenya. BMJ Global Health, 3(3), e000904.

Bassoumah, B., Adam, A. M., & Adokiya, M. N. (2021). Challenges to the utilization of Community-based Health Planning and Services: the views of stakeholders in Yendi Municipality, Ghana. BMC Health Services Research, 21(1), 1-9.

Bhorat, H., Naidoo, K., & Pillay, K. (2016). Growth, poverty and inequality interactions in Africa: An overview of key issues. Available at: https://ageconsearch.umn.edu/record/267778.

Cashin, C., & Dossou, J. P. (2021). Can national health insurance pave the way to universal health coverage in sub-Saharan Africa? Health Systems & Reform, 7(1), e2006122.

Chireshe, J., & Ocran, M. K. (2020). Financial development and health care expenditure in Sub-Saharan Africa Countries. Cogent Economics & Finance, 8(1), 1771878.

Conde, K. K., Camara, A. M., Jallal, M., Khalis, M., Zbiri, S., & De Brouwere, V. (2022). Factors determining membership in community-based health insurance in West Africa: a scoping review. Global Health Research and Policy, 7(1), 46.

Dowou, R. K., Amu, H., Saah, F. I., Adeagbo, O., & Bain, L. E. (2023). Increased investment in Universal Health Coverage in Sub–Saharan Africa is crucial to attain the Sustainable Development Goal 3 targets on maternal and child health. Archives of Public Health, 81(1), 34.

Ghana Health Financing Strategy (2015). 2015 Ghana Health Financing Strategy. Republic of Ghana. Available at: https://www.moh.gov.gh/wp-content/uploads/2016/02/Health-Finance-Strategy-160203045304.pdf.

International Trade Administration Ghana (2022). Ghana - Country Commercial Guide (2022). Available at: https://www.trade.gov/ghana-country-commercial-guide.

Issahaku, Y., Thoumi, A., Abiiro, G. A., Ogbouji, O., & Nonvignon, J. (2021). Is value-based payment for healthcare feasible under Ghana's National Health Insurance Scheme? Health Research Policy and Systems, 19(1), 1-14.

Joshi, A., Morales, L. G., Klarman, S., Stellato, A., Helton, A., Lovell, S., & Haczek, A. (2021). A knowledge organization system for the united nations sustainable development goals. In The Semantic Web: 18th International Conference, ESWC 2021, Virtual Event, June 6–10, 2021, Proceedings 18 (pp. 548-564). Springer International Publishing.

Karamagi, H. C., Njuguna, D., Kidane, S. N., Djossou, H., Kipruto, H. K., Seydi, A. B. W., ... & Nganda, B. M. (2023). Financing health system elements in Africa: A scoping review. PLos One, 18(9), e0291371.

Kipo-Sunyehzi, D. D., Ayanore, M. A., Dzidzonu, D. K., & AyalsumaYakubu, Y. (2019). Ghana's journey towards universal health coverage: the role of the national health insurance scheme. European Journal of Investigation in Health, Psychology and Education, 10(1), 94-109.

Kodali, P. B. (2023). Achieving universal health coverage in low-and middle-income countries: Challenges for policy post-pandemic and beyond. Risk Management and Healthcare Policy, 607-621.

Kutzin, J. (2008). Health financing policy: a guide for decision-makers. Health Financing Policy Paper. Copenhagen, WHO Regional Office for Europe, 24.

Kwarteng, A., Akazili, J., Welaga, P., Dalinjong, P. A., Asante, K. P., Sarpong, D., ... & Sankoh, O. (2020). The state of enrollment on the National Health Insurance Scheme in rural Ghana after eight years of implementation. International Journal for Equity in Health, 19(1), 1-14.

Kweku, M., Amu, H., Awolu, A., Adjuik, M., Ayanore, M. A., Manu, E., ... & Gyapong, J. O. (2020). Community-based health planning and services plus programme in Ghana: a qualitative study with stakeholders in two systems learning districts on improving the implementation of primary health care. PLoS One, 15(1), e0226808.

Lozano, R., Fullman, N., Mumford, J. E., Knight, M., Barthelemy, C. M., Abbafati, C., ... & Cárdenas, R. (2020). Measuring universal health coverage based on an index of effective coverage of health services in 204 countries and territories, 1990–2019: a systematic analysis for the Global Burden of Disease Study 2019. The Lancet, 396(10258), 1250-1284.

Mcintyre, D., Meheus, F., & Røttingen, J. A. (2017). What level of domestic government health expenditure should we aspire to for universal health coverage? Health Economics, Policy and Law, 12(2), 125-137.

Mao, W., McDade, K. K., Huffstetler, H. E., Dodoo, J., Abankwah, D. N. Y., Coleman, N., ... & Yamey, G. (2021). Transitioning from donor aid for health: perspectives of national stakeholders in Ghana. BMJ Global Health, 6(1), e003896.

Ministry of Health (2023). Ghana's Health Sector Annual Summit 2023, Speech by Hon Minister 2023 Health Summit. Available at: https://www.moh.gov.gh/wp-content/uploads/2023/06/SPEECH-BY-HON-MINISTER-2023-HEALTH-SUMMIT_ENB.pdf.

Ministry of Health. (2022). 2021 Holistic Assessment Report. Ministry of Health, April, 56. https://www.moh.gov.gh/wpcontent/uploads/2022/08/2021-Holistic-Assessment-Report_v1.7.3.pdf.

Ministry of Health (2018). Holistic Assessment of 2017 Health Sector Programme of Work. Available at: https://www.moh.gov.gh/wp-content/uploads/2018/09/2017-Holistic-Assessment-Report_Final_09.08.2018.pdf

Ministry of Health (2015). Holistic Assessment of the Health Sector Programme of Work 2015. Available at: https://moh.gov.gh/wp-content/uploads/2016/02/Holistic-Assessment-2015.pdf

Ministry of Health. (2014). Holistic Assessment of the Health Sector Programme of Work 2014. Available at: https://www.moh.gov.gh/wp-content/uploads/2016/02/2014-Holistic-Assessment-Report.pdf.

Ministry of Health (n.d.). Annual Programme of Work. Available at: Annual Programme of Work - Ministry Of Health (moh.gov.gh)

National Health Insurance Authority (2023). NHIA participants in the 2023 Health Summit. Available at: https://www.nhis.gov.gh/News/nhia-participants-in-the-2023-health-summit-5491.

Myint, C. Y., Pavlova, M., Thein, K. N. N., & Groot, W. (2019). A systematic review of the health-financing mechanisms in the Association of Southeast Asian Nations countries and the People's Republic of China: lessons for the move towards universal health coverage. PLoS One, 14(6), e0217278.

Novignon, J., Ofori, B., Tabiri, K. G., & Pulok, M. H. (2019). Socioeconomic inequalities in maternal health care utilization in Ghana. International Journal for Equity in Health, 18, 1-11.

OECD (2017), "Financing of health care," in Health at a Glance 2017: OECD Indicators. Paris: OECD Publishing. DOI: https://doi.org/10.1787/health_glance-2017-46-en.

Tulchinsky, T. H., Varavikova, E. A., & Bickford, J. D. (2014). The New Public Health Third Edition. In The New Public Health Third Edition (pp. 1-884).

United Nations. Economic Commission for Africa (2019-02). Healthcare and economic growth in Africa. Addis Ababa. © UN. ECA. https://hdl.handle.net/10855/43118.

United Nations General Assembly (2015). Transforming our world: the 2030 Agenda for Sustainable Development, A/RES/70/1 (2015), http://undocs.org/A/RES/70/1

World Bank (2018). Ghana Priorities for Ending Poverty and Boosting Shared Prosperity Systematic Country Diagnostic. Available at: https://documents1.worldbank.org/curated/en/175681543268250421/pdf/132010-SCD-corrigendum-PUBLIC.pdf.

World Bank Report (2024). Current health expenditure (% of GDP). Available at: Current health expenditure (% of GDP) | Data (worldbank.org)

World Health Organization (2023). Co-creating solutions through multi-sectoral approach for sustainable health financing in Ghana. Available at https://www.afro.who.int/countries/ghana/news/co-creating-solutions-through-multi-sectoral-approach-sustainable-health-financing-ghana.

World Health Organization (2022). Reducing out-of-pocket health expenditure a panacea to universal health coverage. Available at: https://www.afro.who.int/news/reducing-out-pocket-health-expenditure-panacea-universal-health-coverage

World Health Organization (2020). Community-based health insurance. Available at: https://www.who.int/news-room/fact-sheets/detail/community-based-health-insurance-2020.

World Health Organization (2010). The world health report: health systems financing: the path to universal coverage. World Health Organization. https://iris.who.int/handle/10665/44371.

World Health Organization (2007). Everybody's business-strengthening health systems to improve health outcomes: WHO's framework for action. Available at: https://iris.who.int/bitstream/handle/10665/43918/9789241596077_eng.pdf?sequence=1

World Health Organization (2013). State of health financing in the African Region. https://www.afro.who.int/publications/state-health-workforce-who-african-region-2021

APPENDIX: INTERVIEW GUIDE

CARISCA Health Supply Chain Financing System in Ghana Interview Guide

Dear Participant,

Thank you for agreeing to participate in this study, which focuses on exploring the health supply chain financing system in Ghana and its implications for policy and practice. The objective of this study is to obtain insight into the nature of, and existing financing models in, the health supply chain in Ghana, identify financing gaps, and explore alternate financing schemes to address the financing challenges within the sector. Our interest is to help build resilient health systems and optimize the healthcare delivery services for better health outcomes.

We can assure you that all responses provided will be treated with confidentiality and used solely for academic research purposes. We greatly appreciate your participation in this interview, as your valuable insights and experiences will contribute to advancing the understanding of the health supply chain financing system in Ghana to improve the general wellbeing.

Thank you for your time.
Sincerely,

Abdul S. Muntaka, PhD.
Senior Technical Adviser, CARISCA
asmuntaka@carisca.knust.edu.gh
+233 205515494

Prof Emmanuel K. Anin
eanin@carisca.knust.edu.gh
+233 242687976

Interview Guide for Health Supply Chain Financing in Ghana

S/N	Objective	Interview Guide
Objective 1: ***Understanding the existing financing mechanisms, policies, and practices in place and their effectiveness, efficiency, and equity is important for ensuring a sustainable healthcare system. Kindly share your experience with us.***		
The State of Existing Financing Models *(Will also require Secondary data)*	*To evaluate existing financing models on both the supply side and demand side of the health supply chain in Ghana*	1. What are the major sources of financing within the health supply chain in Ghana? 2. Can you describe the current financing schemes/model within the health sector in Ghana? • *What are the various financing options you rely on for your medical supplies (Which of these do you rely on most and why?)* • *What are the different means (NHIS, out-of-pocket/employer) by which patients pay for the services delivered?* • *Which of these is mostly used by patients and why?* • *Which of these means is preferred by your outfit, and why?*
		3a. Could you tell us the strengths of the existing financing scheme of the health supply chain (in relation to your facility?) 3b. Could you tell us the weaknesses of the existing financing scheme of the health supply chain (in relation to your facility?)
		4. Does this existing financing model/scheme support access to healthcare services in Ghana? Can you provide some examples and their effectiveness?
Objective 2: ***The financing gaps within the health supply chain in Ghana significantly affect multiple aspects of the healthcare system. Kindly share your views on identifying the areas of funding gaps in the health supply chain in Ghana.***		
Financing Gaps *(Will also require Secondary data)*	*To identify financing gaps within the health supply chain in Ghana.*	1. How do you describe the adequacy of existing financing mechanisms in meeting the needs of the health supply chain in Ghana?
		2. Are there any specific gaps or deficiencies that you have observed? (Follow ups: If yes, what may account for these?)
		3. In your opinion, which areas of the health supply chain in Ghana lack sufficient financing, and why?
Objective 3: ***Understanding the current landscape of donor funding and the extent to which it sustains the healthcare system in Ghana is critical for policy development. Please kindly share your experience in this regard.***		
The Level of Donor Dependency *(Will also require Secondary data)*	*To determine the degree of donor dependency across the health supply chain in Ghana.*	1a. Can you tell us where you get your funding from other than from the government? 1b. Can you describe how donor funding supports different components of the health supply chain in Ghana? Can you mention the key ones?
		2. How would you characterize the level of dependency on donor funding within the health supply chain in Ghana relative to GoG and other sources?
		3a. Do different donors have specific areas of interest in relation to funding in the health sector in Ghana? 3b. Are there specific areas or aspects that rely heavily on donor support? (E.g., vaccinations, HIV)
		4. What do you think healthcare in Ghana will be like without donor support?
		5. Do you think we can continue to depend on donor support to build a sustainable healthcare system in Ghana?
		6. Are there any efforts or initiatives in place to reduce donor dependency and promote self-sufficiency within the health supply chain in Ghana?

Objective 4: Exploring alternate financing mechanisms can offer innovative solutions to enhance the efficiency, effectiveness, and sustainability of the health supply chain in Ghana. Kindly share your views on alternative financing systems for the health supply chain in Ghana.		
Exploring Alternate Financing Mechanisms *(Only primary data is required)*	*To explore alternate supply and demand side financing mechanisms for a sustainable health supply chain in Ghana: Exploring healthcare financing mechanisms*	1. Would you say that the current system of healthcare financing has contributed to Ghana's healthcare goals?
		2. Are you aware of any alternative healthcare financing mechanisms that can be proposed or implemented for financing health services in Ghana? (Follow up: If yes, please describe them.)
		3. What do you perceive as the potential benefits of the proposed alternative healthcare financing mechanisms compared to the current system?
		4. From your perspective, how viable and feasible are the proposed alternative healthcare financing mechanisms in the Ghanaian context?
		5. What are the potential challenges or risks associated with implementing the proposed alternative healthcare financing mechanisms in Ghana?
		6. In your view, what criteria should be considered when evaluating the feasibility and effectiveness of the proposed healthcare financing mechanisms?
	To explore alternate supply and demand side financing mechanisms for a	7. Who do you think should be the key stakeholders involved in designing and implementing the proposed alternative healthcare financing mechanisms in Ghana?
		8. How can the government, private sector, and civil society organizations collaborate to support and sustain the proposed alternative healthcare financing initiatives?
	sustainable health supply chain in Ghana: Stakeholders and Implementation	9. What role should insurance providers, healthcare providers, and individuals play in the success of alternative healthcare financing mechanisms?
		10. What strategies or approaches do you think would help gain public acceptance and support for alternative healthcare financing mechanisms?

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