# CHARLES UNIVERSITY

FACULTY OF SOCIAL SCIENCES

Institute of Sociology

Department of Public and Social Policy



## Dissertation Thesis

**2024** **Martha Amoako**

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# Towards a Functional Health System Governance: The Centrality of Policies, Institutions and Actors' Configuration in malaria eradication among under-five children in Ghana

Dissertation Thesis


Praha 2024

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Year of the defence: 2024

# Declaration

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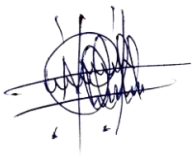

In Prague on
**[12/04/2024]**

Martha Amoako

# Abstract

The tenets of sustainable development require a strong healthcare sector that addresses children's health issues, especially in developing countries like Ghana. But the prevalence of malaria could hinder all efforts at ensuring a strong healthcare sector. This is rightly the case of Ghana. Malaria remains a significant cause of deaths among children under five in Ghana, despite diverse global and national health policy interventions. This study examines the implications of policies, actors, and public institutions in addressing malaria among children under five in four (4) districts of Ghana: Obuasi Municipality, Mpohor District, Kassena-Nankana East District, and Ada West District.

Using descriptive and empirical analyses, the study combined secondary and primary data. The study developed questionnaires and conducted interviews of 241 respondents that comprised individuals and institutional actors with the ultimate goal of gathering detailed information on policy formulation, actor interactions, and health outcomes for children under five under the lens of malaria in different administrative case study areas. These areas showcase varying social, economic and political environments that are critical to determining the outcomes of malaria-based health interventions.

The results from the Ordinary Least Squares regression (OLS), which the study utilised, showed *inter alia* that government health expenditure, access to safe drinking water, low birthweight, and insecticide-treated nets were negatively correlated with under-five mortality. Neonatal mortality and adolescent fertility showed a positive correlation, too.

Current health policies, including the National Health Insurance Scheme (NHIS), insecticide-treated nets (ITNs), indoor residual spraying (IRS), and artemisinin-based combination therapies (ACTs), have made progress in addressing malaria among children under five in Ghana. However, discrepancies between policy intent and implementation, particularly with the NHIS, were identified. Limited stakeholder involvements in policy formulation and implementation, due to a top-down approach and centralized decision-making, were also observed. The study argues that an effective health system governance, with actors' collaboration, is crucial for catalysing policy and practical efforts towards eradicating malaria among children under five in Ghana. This is cognizant to the fact that political and economic environment shapes policy formulation and subsequent outcomes on malaria among children under five in Ghana.

## Keywords

Governance, Health system, Healthcare, Health policy, ITNs, Malaria, NHIS, Under-five, Mortality Rate,

**Abstrakt**

Zásady udržitelného rozvoje vyžadují silný zdravotnický sektor řešící problémy v oblasti dětského zdraví, a to zejména v rozvojových zemích jako Ghana. Snahu vybudovat silné zdravotnictví nicméně může zmařit výskyt malárie, což je právě případ Ghany. Malárie zůstává v Ghaně významnou příčinou úmrtí dětí mladších pěti let, a to navzdory různorodým globálním i národním zdravotnickým programům a politikám. Tato studie se soustředí na implikace politik, aktérů a veřejných institucí v boji proti malárii mezi dětmi mladšími pěti let ve čtyřech okresech země: obec Obuasi, okres Mpohor, Východní okres Kassena-Nankana a Západní okres Ada.

Studie zpracovává primární a sekundární data metodou deskriptivní i empirické analýzy. V rámci studie byly připraveny dotazníky a provedeny rozhovory s 241 respondenty z řad individuálních i institucionálních aktérů s cílem sběru podrobných informací o formulaci politik, aktérských interakcích a výsledcích léčby malárie ve skupině dětí mladších pěti let v kontextu případových studií z různých administrativních oblastí. Tyto oblasti vykazují různá sociální, ekonomická a politická prostředí, která jsou pro posouzení výsledků zdravotnických programů v oblasti boje proti malárii zásadní.

Výsledky regrese sekundárních dat metodou nejmenších čtverců (OLS), která byla v rámci studie použita, ukázaly mimo jiné, že vládní výdaje na zdravotnictví, přístup k čisté pitné vodě, nízká porodní váha a insekticidní moskytiéry vykazují negativní korelace s mortalitou dětí mladších pěti let. Pozitivní korelaci vykazuje rovněž novorozenecká úmrtnost a podíl rodiček mezi 15 a 19 lety. Současné zdravotní politiky zahrnující NHIS (Národní zdravotní pojištění), ITN (insekticidní moskytiéry), IRS (insekticidní postřiky) a ACT (artemisinová kombinovaná terapie), dosáhly v Ghaně v oblasti boje proti malárii mezi dětmi mladšími pěti let pokroku. Byl však zjištěn nesoulad mezi úmysly na pozadí těchto politik a jejich reálnou implementací, zejména pokud jde o NHIS. Rovněž bylo vysledováno omezené zapojení dotčených subjektů do formulování a implementace politik v důsledku jejich prosazování shora a v důsledku centralizovaného rozhodování. Studie dochází k závěru, že klíčovým katalyzátorem politik i praktického postupu při vymycování malárie mezi ghanskými dětmi mladšími pěti let je efektivně řízený systém zdravotnictví. Ten však závisí na skutečnosti, že jsou formulovány politiky a navazující výsledky jsou ve skupině ghanských dětí mladších pěti let utvářeny politickým a ekonomickým prostředím.

**Klíčová slova**

Řízení a správa, zdravotnictví, zdravotní péče, zdravotnická politika, ITN (insekticidní moskytiéry), malárie, NHIS (Národní zdravotní pojištění), úmrtnost dětí mladších, Do pěti let (U5)

# Název práce

Cesta k funkčnímu řízení zdravotního systému v Ghaně: Centralizace politiky a institucí a definice hlavních aktérů ve snaze o vymýcení malárie u dětí do 5 let věku

## Acknowledgement

I would like to express my heartfelt gratitude to Almighty God for the strength and courage to complete this doctoral studies. Also, to my lovely family and those who motived and supported me throughout this work. Last and not the least, I appreciate my supervisor Prof. Portucek for the consistent thoughts and views that shaped this dissertation. We won together.

# Dedication

I dedicate this dissertation to my lovely and gifted children.

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| | |
|---|---|
| ACTs | Artemisinin Combination Therapy (ACT) |
| AGAMal | AngloGold Ashanti Malaria Control Programme |
| CHPS | Community Health Planning and Services |
| CSOs | Civil Society Organisations |
| DHD | District Health Directorate |
| ECOWAS | Economic Community of West African States |
| EU | European Union |
| FDA | Food and Drugs Authority |
| GBD | Global Burden of Disease Collaborative Network |
| GDP | Gross Domestic Product |
| GHO | Global Health Observatory |
| GHS | Ghana Health Service |
| GSS | Ghana Statistical Service |
| IHME | Institute for Health Metrics and Evaluation |
| ITNs | Insecticide Treated Nets |
| IRS | Indoor Residual Spraying |
| MDGs | Millennium Development Goals |
| MMDAs | Metropolitan, Municipal and District Assemblies |
| MoH | Ministry of Health |
| NDC | National Democratic Congress |
| NGO | Non-Governmental Organisation |
| NHIA | National Health Insurance Authority |
| NHIS | National Health Insurance Scheme |
| NMCP | National Malaria Control Programme |
| NPP | New Patriotic Party |
| OPD | Out-patient Department |
| PMI | Presidents Malaria Initiative |
| RBM | Roll Back Malaria Initiative |
| RDTs | Rapid Diagnostic Tests |
| SSA | Sub-Saharan Africa |
| SDGs | Sustainable Development Goals |
| U5 | Under five years of age |
| U5MR | Under five Mortality Rate |
| UK | United Kingdom |
| UN | United Nations |
| UNICEF | United Nations Children's Fund |
| UNDP | United Nations Development Programme |
| USA | United States of America |

| | |
|---|---|
| USAID | United States Agency for International Development |
| World Bank | International Bank for Reconstruction and Development |
| WHO | World Health Organisation |

# 1 INTRODUCTION

## 1.1 Background of the Study

Sustainable development cannot be fulfilled without developing the health sector to address children's health-related issues worldwide. For the past two decades, the health of children under five years of age (U5) has gained significant attention from international health organisations, governments and non-governmental organisations (NGOs) globally. Considerable efforts have been made to promote child health and survival through the identification of a plethora of causes of morbidity and mortality and understanding of healthcare-seeking behaviours to inform health policies towards the prevention and treatment of child health problems (Black et al., 2003; World Health Organization, 2015a, 2022).

The introduction of the Millennium Development Goal (MDG) by the United Nations (UN) in 2000 to reduce U5 mortality by two-thirds between 1990 and 2015 marked a concerted global effort to promote child health. This led to the formulation and implementation of various interventions by both government and NGOs to achieve MDG 4 (United Nations, 2015; World Health Organization, 2021a). The end of the MDGs saw a significant global reduction of about 56% in U5 mortality rate from 93 deaths per 1,000 live births as of 1990 to 41 deaths per 1000 live births in 2016, with a further decline to 37 deaths per 1,000 live births in 2020 (World Health Organization, 2022). However, evidence suggests that in 2015, which marked the deadline for the achievement of MDG 4, about 99% of the child mortality rate was prevalent in lower and middle-income countries (You et al., 2015), with approximately 50% occurring in Africa (World Health Organization, 2015a). Within the same period, sub-Saharan Africa (SSA) recorded a high rate of U5 mortality of about 79 deaths per 1,000 live births compared to the global rate of 41 deaths per 1,000 live births (World Health Organization, 2022). Ghana also fell short in achieving MDG 4 by recording a U5 mortality rate of about 60 deaths per 1,000 live births despite its national target of 40 deaths per l,000 live births by 2015 captured in the national U5 Child Health Policy 2007-2015 (Ghana Statistical Service, 2017).

One of the major diseases that has affected U5 children and mothers globally, especially in SSA countries (O'Meara et al., 2010; Orok et al., 2021), such as Ghana, is malaria (Lamptey et al., 2018; O'Meara et al., 2010; Orok et al., 2021; Osarfo et al., 2022). Malaria is a deadly disease

triggered by parasites transmitted to persons through the bites of infected female Anopheles mosquitoes (World Health Organization, 2021b, 2022). Although the disease is preventable and curable, it continues to infect millions of people annually and exact a heavy burden on the health sector of economies. Global malaria cases are estimated to have increased from 227 million in 2019 to 247 million in 2021 (World Health Organization, 2022). The estimated number of malaria deaths as of 2020 stood at 627,000, indicating an increase from 558,000 in 2019 and 405,000 in 2018. Children under U5 with malaria accounted for 67% of all malaria deaths worldwide in 2018, witnessing a rise to 77% in 2020 (World Health Organization, 2021b)

In 2021, Africa was home to 95% of all malaria cases (228 million), 96% of global malaria deaths (602,000), and 80% of all malaria deaths in children U5. However, funding for malaria increased from US$ 3.0 billion in 2019 to US$3.3 billion in 2020 and US$ 3.5 billion in 2021 (World Health Organization, 2022). In 2021, monetary contributions from governments of endemic countries amounted to US$ 1.1 billion in funding for malaria issues (World Health Organization, 2022). However, despite these investments, malaria continues to ravage the health of many countries like Nigeria, the Democratic Republic of Congo, Uganda, Côte d'Ivoire, Mozambique, Niger and Ghana, among others. With increasing financial investments in the fight against malaria (Akpalu & Codjoe, 2013; World Health Organization, 2021b; Orok et al., 2021), one would have anticipated a drastic fall in reported cases. However, this much-awaited result is yet to be realised.

With the renewed target by the UN Sustainable Development Goal (SDG) 3 to end preventable deaths of U5 and reduce the U5 mortality rate to 25 per 1,000 live births by 2030, it has become imperative for Ghana to revise its existing child health policies, formulate and implement new national health policies and strategies to achieve this goal. In addition, a critical examination of national health system governance has become very important to understand the general weaknesses that made it challenging to meet MDG 4 and the necessary modifications and reforms needed to improve overall child health outcomes. Over the past two decades, the concept of health system governance has received much attention from scholars and international organisations as the best approach to improve healthcare delivery in developed and developing countries (Bigdeli et al., 2020; Pyone et al., 2017). The complexities, shocks, and consequences of economic and political crises, natural disasters, and pandemics have necessitated countries to

shift to a more holistic approach to managing health systems (Kickbusch & Gleicher, 2013). Health systems can only be effective in the twenty-first century when they encompass a range of networks, collaborations and interactions among various actors or stakeholders in the health service delivery chain.

In this current dispensation, health system processes must shift from a top-down to a more inclusive and participatory approach concerning policy formulation and implementation, hence health system governance (Kickbusch & Gleicher, 2013). Similarly, "twenty-first-century health systems need to be participatory, inclusive and pluralist, following Whole of Society and Whole of Government principles" (Bigdeli et al., 2020). The WHO, in its World Health Report in 2000, first introduced governance with health, where they conceptualised it from a political ideology perspective of stewardship driven by the formulation of strategic policy frameworks with effective regulation, oversight, and incentives within an environment of equity, strong accountability and transparency (World Health Organization, 2015b). Thus, governance cannot be achieved or restricted to only the promulgation of laws, rules or formal constitutions but encompasses the realisation that societies are driven by networks, with each network having multiple actors collaborating at various levels on different activities (Chhotray & Stoker, 2009).

In this study, health system governance is currently understood from a state-centric to a more participatory, collaborative and synergistic approach involving various actors ranging from state and non-state actors to health and non-health actors and international organisations to address health issues and problems. This multi-stakeholder approach to health system governance stems from the realisation of the influence of other sectors on health and how health affects other sectors. Therefore, there is a need for a broader concerted effort toward a multi-sectorial policy framework that seeks to enhance overall social well-being, health, and development. Today, empirical evidence suggests that some countries enjoy the benefits of improved quality health care because they adopted the ideals and principles of health system governance (World Health Organization, 2022) and the comprehensive implementation of policies. However, many developing countries such as Ghana are yet to realise the benefits of firm and functioning health system governance. Establishing a solid health system governance could effectively eradicate malaria, as exemplified by countries such as Algeria, Argentina, Seychelles, and Costa Rica (World Health Organization, 2018), which have been certified as malaria-free zones.

## 1.2 Statement of the Problem

Since its independence, Ghana has demonstrated political, legislative, and fiscal commitment toward developing a robust healthcare system for its citizens. The goal has been to establish an effective and efficient health delivery system that ensures citizens' equitable access to healthcare utilisation by citizens by eliminating financial barriers. Significant to this has been the creation of various health institutions and decentralised governance structures, the development of numerous health policies to tackle different kinds of health problems and health financing through the implementation of the national health insurance scheme to replace the 'cash and carry' or 'out-of-pocket' payment system in health care utilisation (Saleh, 2012).

The introduction of the MDGs further enhanced the prioritisation of health issues in Ghana. The quest was to reduce the U5 mortality rate to two-thirds by the year 2015 per the MDG 4 target and to decrease the infection rates of malaria, HIV/AIDS and other communicable diseases per the MDG 6 target. Over the years, the government has implemented several health plans and strategies to achieve these MDG targets with significant government financial investment and commitment. It is estimated that since 2008, the government has spent not less than US$ 231 million, in addition to financial support from international organisations such as the World Bank, the United States Agency for International Development (USAID), United Nations Children's Fund (UNICEF), Presidents Malaria Initiative (PMI), and the private sector (Afoakwah et al., 2018).

Despite implementing these interventions amidst substantial financial investment, Ghana's health system is still faced with a daunting challenge in improving healthcare outcomes about malaria among mothers and children U5. Evidence shows malaria is a significant cause of death in Ghana, contributing to 38% and 36% of out-patient and in-patient attendance, respectively. The estimated number of deaths attributable to malaria in 2019 was 12,880. With children U5, there have been rising malaria cases and deaths since 2010. In 2000, malaria in-patient cases and deaths among U5 were reported to be 27.89% and 44.54%, respectively. In 2012, in-patient malaria cases were reported to be 63.34% and 22.38% recorded deaths; in 2016, 46.7% cases and 43.11% deaths (World Health Organization, 2021b).

The U5 malaria death rate in Ghana in 2019 was 46.2%. The increasing trend of malaria cases and deaths in Ghana reported that in 2020, the country recorded an estimated 2.1% of global malaria cases with 1.9% of deaths. This is about 15% higher than that of Nigeria per population. The preceding evidence on the malaria cases and deaths among U5 proves that Ghana continues to contribute to the worldwide malaria burden and death rate among U5 (World Health Organization, 2021b). This raises serious policy concerns considering the enormous economic and financial investments made by the government and other donor agencies in the fight against malaria, coupled with the fact that malaria can be treated and prevented. This provides enough basis for an empirical investigation to understand why all the health policies and strategies implemented over the years have not yielded the desired results in promoting positive U5 malaria health outcomes.

Scholars have called for empirical investigations into health policy formulation and implementation of malaria treatment, which has proven more costly than prevention without a significant positive outcome. It has been established convincingly that successful health policies and strategies would require building and maintaining social relations that ensure sustained resource redistribution through strategic policy, reliable funding, effective institutions, and the inclusion of all relevant actors and socially marginalised population groups in all decision-making activities (Knoepfel et al. 2010; Kickbusch & Gleicher, 2013). Health policy and interventions should focus on providing and improving quality health services for the vulnerable population (Nkegbe et al., 2017), specifically mothers and children. The political and administrative structures and the assigned organisations (regulatory and providers) must decide and formulate policies and implement all policy interventions (Abimbola et al., 2015; World Health Organization, 2022).

Although malaria-related studies are prevalent in Ghana, the interactions among policies, institutions and actors and the subsequent effect on health outcomes within a functional health system governance framework have not been investigated. Extant literature has mainly focused on the funding of malaria programmes (Shretta et al., 2020), mathematical models to guide decision-making and planning of malaria control programmes (Awine et al., 2017), the prevalence of and management of malaria as well as large scale malaria interventions for children U5 (Afoakwah et al., 2015, 2018). This study fills the literature gap as it investigates

and analyses the interplay of policies, various actors and institutions involved in the formulation and implementation of malaria policy intervention to ascertain the underlying causes and challenges of these interventions and the prevailing outcomes on end beneficiaries. As Knoepfel et al. (2010) argue, policy analysis must consider the observed changes in the behaviour or development and the policy's cause and effect. Thus, the relationship between the political-administrative programme, the political-administrative arrangement, the action plan and the implementation act, the changes in target group behaviour (impact), and the observable outcome of the end beneficiary (effect) are critical in policy analysis like this.

## 1.3 Scope of the Study

This research is based on empirical data grounded in case study analysis. The dissertation is based on three basic classifications: (1) political governance and involvement of actors and public-private participation in the decision-making in the health system, as well as the behavioural, traditional and environmental conditions that affect the U5 health system in Ghana; (2) the combined effect of the 'right to health' (public policies and laws regulating health); and (3) the socio-economic situation in Ghana that influences the impact of health policies, governance, institution and on the population (educational level, poverty, environmental, settlement, household income, gender and inequality), which was informed by other studies on the U5 health care in Ghana.

## 1.4 Relevance of the Study

The study looks at key public and social policy aspects that underpin health governance, especially the malaria issue among children U5 in Ghana. The study attempts to reveal the implications of existing healthcare policies, institutions and actors to malaria cases among children U5 in the country. Malaria in Ghana, particularly among children U5, appears to be a social problem that needs a sustainable solution. This solution lies in formulating and implementing a better public and social policy on health.

According to Dery (1984), a social problem depends on how we see it, whether big or small. If a proper approach is not taken within some specific time, it may lead to a more extensive social, cultural or economic consequence. However, the 'malaria problem' has festered over time

without any concentrated solution. The proposition of the solution requires cogent knowledge and understanding of the problem. The importance of filling this knowledge gap, which this study seeks to do, seems even more relevant for complex health system intervention programmes, where the broader context can play a significant role in impacting the outcome of the policies.

In social science discourse, an existing or potential societal problem should have a solution. This study uses the lens of social and public policy in social sciences to identify the causes of the burden of malaria among children U5 in Ghana. It argues that health problems may persist in Ghana if an adequate and potent public health system is not well established. This study combines diverse disciplinary streams, including social and public policy, political economy, and institutionalism, to establish a holistic understanding of the cognitive problem and thus proffer a policy solution. In such a situation, a health policy researcher focusing on the political determinant of health and governance for health requires ingenuity and inspiration from other disciplines, such as comparative political science and economics (Kickbusch & Gleicher, 2013). This helps the researcher overcome the challenges that may limit the factors that underpin the investigation processes. Hence, the relevance of framing this study in social science discourse about malaria disease among children cannot be overemphasised. Even more, malaria in Ghana, particularly among children U5, is an economic problem, too. Increasing cases of malaria means government expenditure to curb this menace. This increases the financial burden of the government.

## 1.5 Research Questions

To test and prove the hypotheses, the doctoral thesis is guided by four main questions: Even though they all looked at malaria issues in children U5, points 1 and 2 are more specific, whereas points 3 and 4 are general.

1. Is there any relationship between health expenditure, women's employment, neonatal mortality, low birth rate, portable water, adolescent fertility, anaemia, pneumonia, malaria incidence, children overweight, stunting, insecticide-treated bed nets and maternal deaths and children U5 mortality, especially from malaria in Ghana?

2. Is there any relationship between mothers' age and marital status, quality of services provided by the NHIS, amount of money spent on malaria infection, difficulty in accessing healthcare, transport system and childhood mortality from malaria in Ghana?
3. What are the critical discrepancies between malaria health policy strategies and implementation processes?
4. What are the institutional and policy shortcomings of the effective implementation of health policy strategies concerning U5 malaria eradication, and how to deal with them?

## 1.6 Hypotheses

The study's problem leads to formulating the following hypotheses. These were chosen on general and specifics as classified in the research question above respectively.

- There is no relationship between health expenditure, women's employment, neonatal, low birth rate, portable water, adolescent fertility, anaemia, pneumonia, malaria incidence, children overweight, stunting, insecticide-treated bed nets and maternal deaths and U5 mortality, especially from malaria in Ghana.
- There is no relationship between age and mothers' marital status, quality of services provided by the NHIS, amount of money spent on malaria infection, difficulty in accessing healthcare, transport system and U5 mortality from malaria in Ghana.
- The hierarchical structure of Ghana's public health care system inhibits the effective participation of other institutions and actors in improving U5 malaria outcomes.
- The interactions between institutions, policies and actors towards availability, accessibility, affordability and quality health care have not significantly improved U5 malaria health outcomes in Ghana.

## 1.7 Conclusion

This chapter sets out the foundation of the study. It sets off by introducing the study's to create a better understanding of the issue at hand. It provides the study's background and rationale in the problem statement. Subsequently, the chapter indicates the study's scope and relevance.

# 2 AIM AND STRUCTURE OF THE STUDY

## 2.1 Aim of the Study

This doctoral study aims to provide new insights into good health sector governance, specifically concerning malaria issues among U5 in Ghana. The main research objective is to analyse how policies, actors, and institutions interact in Ghana's public health sector and how they affect the health outcomes of children U5 in early childhood malaria. Similarly, the study aims to determine some factors contributing to children's U5 mortality, primarily due to malaria in four regions in the country (See: Figure 5-1: Map of Ghana).

This is important for governments, multilateral and bilateral organisations, international and local civil society organisations, academics, and private businesses aiming to enhance the developmental outcomes of countries, particularly those in Africa. However, it does not aspire to develop new theories. This research probes the explanatory variables that underpin the burden of malaria among children, with its many policy challenges in four selected regions in Ghana.

## 2.2 Structure of the Study

This work is organised into seven chapters. Chapter One presents the study's introduction, highlighting the background and the statement of the problem motivating the research, the scope of the study, relevant research questions, and the study's hypotheses. Chapter two presents the aims and structure of the study, highlighting the main research objective and how the study is organised.

Chapter three presents the recent development of the problem area. Chapter four further highlights the study's literature review, which comprises a discussion of the study's theoretical and conceptual framework. Here, the policy cycle theory, right-based approach and political economy theory are discussed with clear justification about how they are relevant to the research and align with the study objectives. The chapter reviews key concepts underpinning the study, such as governance, health system governance and malaria. The chapter also provides empirical data on malaria prevalence and mortality across Africa and Ghana. Various control and prevention methods for malaria are reviewed.

Chapter five describes the study context and districts where the research was undertaken. Chapter six discusses the research methodology that underpinned the study. The study's sample size, selection, data collection, data management and analysis methods, model estimations, ethical considerations and limitations are presented here.

Chapter seven presents the findings and interpretations of the data collected from the study participants across the four districts where the study was undertaken. The chapter presents the demographic characteristics of the respondents, the health policies for the eradication of malaria among children U5, actors' interactions in the formulation and implementation of malaria health policies at the district level, the impact of malaria health policies on U5 malaria outcomes and finally the challenges inhibiting effective implementation of the health policies towards the eradication of malaria among U5. The chapter finally provides a discussion of the research findings. The chapter relates the results to suppositions, previous studies, and literature findings. The chapter further situates the study's findings to theoretical propositions underpinning the study.

Chapter eight finally presents the study's conclusion. Contributions of the research and implications of the study to theory, policy and practice are presented. Limitations of the study are also discussed, followed by future research directions. Finally, policy recommendations are proposed.

# 3 RECENT DEVELOPMENT OF THE PROBLEM AREA

## 3.1 Children's U5 Health in Ghana and the World

The issue of children's U5 health and general well-being has been given tremendous attention in countries such as Ghana. The U5 healthcare challenges impede a country's sustainable children's well-being and life expectancy. Globally, governments have made concerted efforts to reduce U5 mortality drastically. Consequently, there has been a significant decline in U5 deaths globally, even though it is still a major health problem in the SSA, as presented in Table 3.1 (World Bank, 2022), where the rates have been consistently higher than in other areas.

The reductions in mortality have not been evenly distributed across the continent. About 15,000 child deaths a day are recorded in Low and Middle-income countries due to preventable causes such as birth asphyxia, preterm birth complications, congenital anomalies, pneumonia, diarrhoea, and malaria (Clark et al., 2020). These diseases may be treated or prevented with essential, affordable interventions like immunization, proper nutrition, clean water and food, and quality primary health care (ibid).

Although countries are on track to achieve the target of at least as low as 25 deaths per 1,000 livebirths by 2030, the rates remain high in SSA, where many countries, such as Ghana, failed to meet Goal 4 of the MDGs targets at a two-thirds reduction in the U5 mortality by 2015 (World Health Organization, 2020). National strategies, interventions, and policies, such as the Child Health Policy 2007–2015, Community-based Health Planning and Services (CHPS) policy and National Health Insurance (NHIS), were launched in Ghana to improve and promote the health of children U5 mortality in is still high relative to other countries or regions.

As shown in Table 3-1, the global U5 mortality rate steadily declined from 76 per 1,000 live births in 2000 to 37 in 2020, representing 52% between 2000 and 2020. Notwithstanding, disparities exist in this reduction across countries and continents. In the same direction, Ghana has witnessed a significant decrease in the U5 mortality rate within the same study period. Ghana's U5 mortality rate decreased from 99.7 deaths per 1,000 live births in 2000 to 44.7 deaths per 1,000 live births in 2020, representing a 55.2 % reduction between 2000 and 2020.

Similarly, Ghana's U5 mortality rate was ahead of Nigeria and Côte d'Ivoire, SSA, but below South Africa, Czechia, and the world average.

Table 3-1: Children U5 mortality rate (deaths per 1000 live births) in Ghana, some selected economies and the world, 2000-2020

| Year | Cote d'Ivoire | Czechia | Ghana | Nigeria | SSA | World | SA |
|---|---|---|---|---|---|---|---|
| 2000 | 143.3 | 5.5 | 99.7 | 182.9 | 150.9 | 75.8 | 71.5 |
| 2001 | 140.1 | 5.2 | 95.7 | 177.3 | 145.6 | 73.2 | 73.1 |
| 2002 | 136.7 | 5.0 | 91.9 | 171.5 | 140.1 | 70.5 | 74.3 |
| 2003 | 133.1 | 4.8 | 88.5 | 165.9 | 134.6 | 67.8 | 75.7 |
| 2004 | 129.5 | 4.6 | 85.6 | 160.3 | 129.2 | 65.0 | 77.7 |
| 2005 | 125.6 | 4.4 | 83.0 | 155.0 | 124.0 | 62.5 | 78.8 |
| 2006 | 122.0 | 4.1 | 80.6 | 150.1 | 119.1 | 60.0 | 79.2 |
| 2007 | 118.2 | 3.9 | 78.0 | 145.6 | 114.2 | 57.6 | 75.3 |
| 2008 | 114.2 | 3.7 | 75.3 | 141.7 | 109.6 | 55.5 | 68.9 |
| 2009 | 109.9 | 3.5 | 72.3 | 138.3 | 105.1 | 53.0 | 60.3 |
| 2010 | 106.3 | 3.4 | 69.1 | 135.5 | 101.0 | 51.2 | 52.0 |
| 2011 | 103.1 | 3.3 | 65.9 | 133.1 | 97.3 | 49.0 | 45.6 |
| 2012 | 100.1 | 3.2 | 62.7 | 131.1 | 93.8 | 47.2 | 41.5 |
| 2013 | 97.0 | 3.1 | 59.8 | 129.4 | 90.7 | 45.5 | 39.3 |
| 2014 | 93.6 | 3.1 | 57.1 | 127.9 | 87.9 | 44.0 | 37.6 |
| 2015 | 90.8 | 3.2 | 54.6 | 126.4 | 85.4 | 42.6 | 36.3 |
| 2016 | 88.4 | 3.2 | 52.2 | 124.7 | 82.8 | 41.3 | 35.2 |
| 2017 | 86.0 | 3.2 | 50.1 | 122.5 | 80.4 | 40.0 | 34.6 |
| 2018 | 83.2 | 3.1 | 48.1 | 119.9 | 78.0 | 38.8 | 33.9 |
| 2019 | 80.3 | 3.0 | 46.4 | 116.9 | 75.6 | 37.7 | 33.0 |
| 2020 | 77.9 | 2.9 | 44.7 | 113.8 | 73.3 | 36.6 | 32.2 |
| C 2000-2020* | -45.6 | -47.3 | -55.2 | -37.8 | -51.4 | -51.7 | -55.0 |

Note: C 2000-2020* denotes the % of reduction of deaths between 2000 and 2020
Source: Author's analysis based on World Bank, 2022

Nevertheless, going by Ghana's performance regarding reducing U5 mortality, the target to minimise U5 mortality to at least as low as 25 deaths per 1,000 live births by 2030 based on SDG 3 target 2.1 may not be achieved. It is clearly shown that U5 mortality is not a problem in Czechia. This may be because Czechia is an advanced economy, and healthcare services have

been tremendously developed compared to SSA economies, such as Ghana, Nigeria, and Côte d'Ivoire.

One of the major diseases and causes of children's U5 and mothers' deaths globally, especially in SSA countries (O'Meara et al., 2010; Orok et al., 2021), such as Ghana, is malaria (Lamptey et al., 2018; O'Meara et al., 2010; Orok et al., 2021; Osarfo et al., 2022). Thus, this study focuses on malaria and government policies and interactions with other stakeholders to address the menace and promote healthy lives of children U5 in Ghana.

## 3.2 Overview of Malaria in Ghana and the World

Malaria is one of the world's most deadly diseases. Pregnant women and young children are most vulnerable to the disease in SSA. Malaria is a fatal disease triggered by Plasmodium parasites transmitted to persons through the bites of infected female Anopheles mosquitoes (Amek et al., 2018; Owusu-Ofori et al., 2013; World Health Organization, 2021).

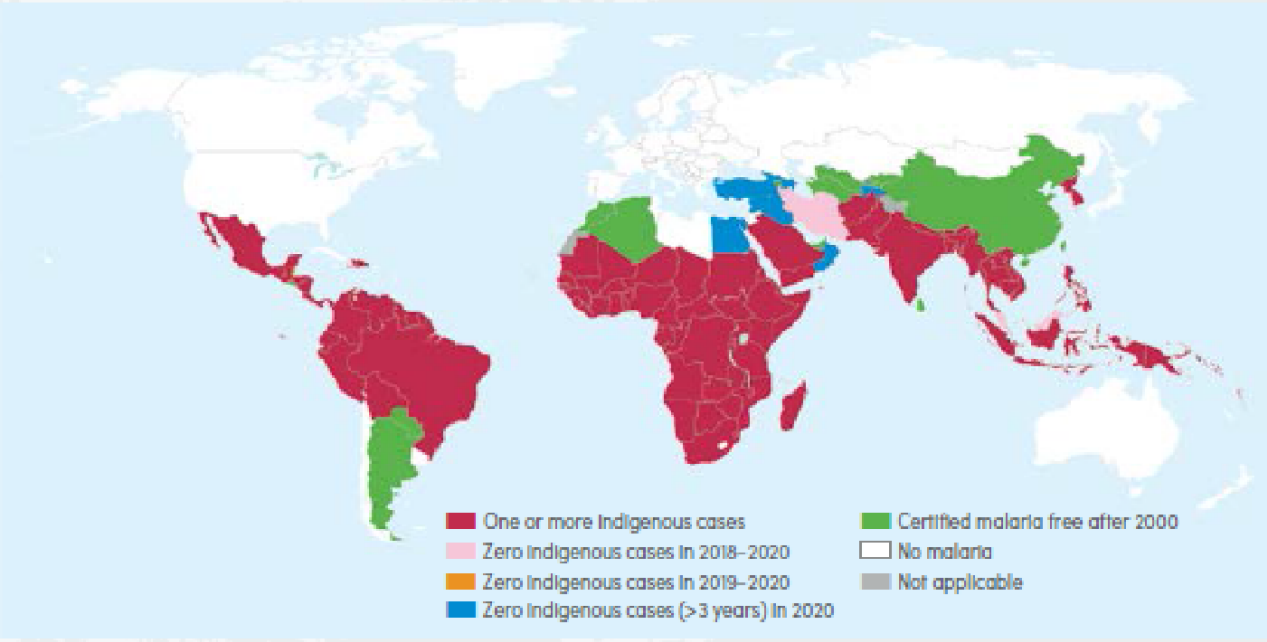


Figure 3-1: World distribution of malaria
Source: World Health Organization, 2021

Malaria endemic areas experience malaria throughout the year, especially in rainy seasons, since mosquitoes easily breed on stagnant fresh waters. The notable symptoms of malaria are "fever, chills, headache and vomiting, and these normally manifest within 10-15 days of infection"

(World Health Organization, 2021b). Out of the 120 species of Plasmodium parasites, four are a threat to human life. These include Plasmodium falciparum, Plasmodium vivax, Plasmodium malaria and Plasmodium ovale (Amek et al., 2018).

### 3.2.1 Global Malaria Burden

Malaria is among the diseases that pose severe threats to people's lives across the globe (See: Figure 3-1: World distribution of malaria). There has been significant research and funding towards international and national reforms, but the disease continues to have a considerable death toll on people, especially among children U5. The introduction of MDG 4, which sought to reduce U5 mortality by two-thirds by 2015, showed a concerted global effort to promote child health. This led to the formulation and implementation of various interventions and the commitment of resources by both government and non-governmental institutions to achieve MDG 4. Malaria remained one of the major diseases that needed to be eradicated to reduce child mortality significantly. Significant efforts were made to reduce child mortality by 2015 (World Health Organization, 2015b), but evidence suggests that the world is losing the fight against the disease globally.

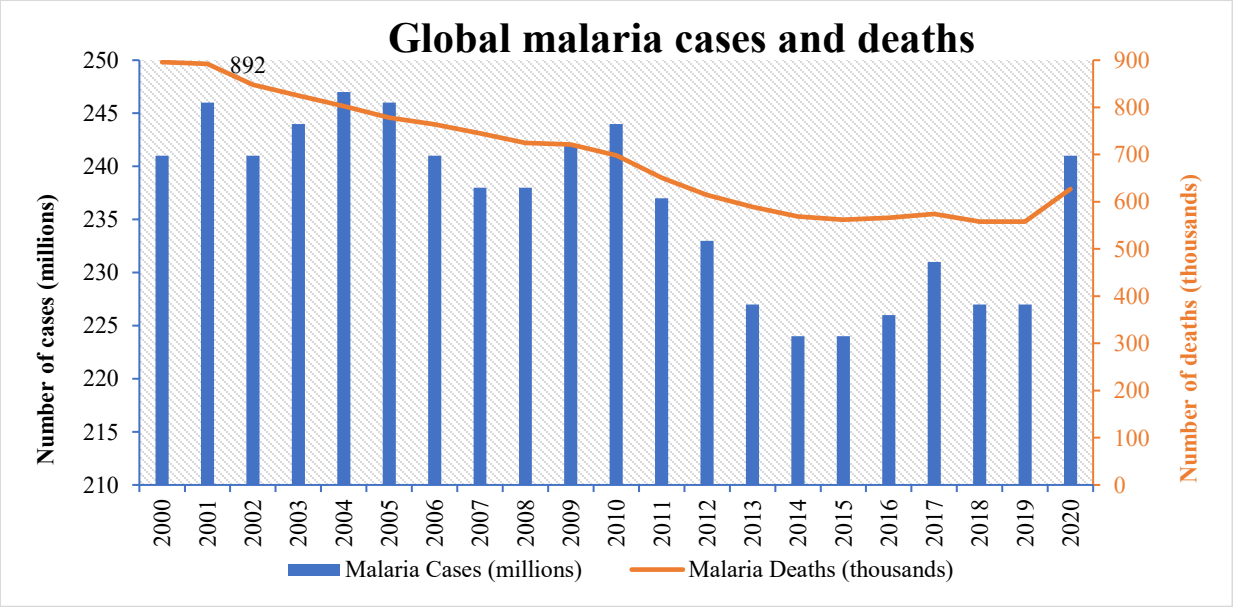


Figure 3-2: Malaria cases (millions) and deaths (thousands), 2000-2020
Source: World Health Organization, 2021

A cursory look at the global malaria data suggests that between 2000 and 2015, global malaria cases reduced from 241 million to 224 million, marking an improvement in efforts to eradicate

the disease. However, there has been a continuous rise in global malaria trends after the MDG interventions and the introduction of SDGs, with an estimated 241 million cases recorded at the end of 2020. This suggests that between 2000 and 2020, no progress has been made in reducing the global malaria burden despite the various international and national malaria programmes and interventions (Figure 3-2). The WHO African Region is reported to contribute significantly to the worldwide malaria burden, accounting for about 95% of international cases, followed by the Eastern Mediterranean Region (2.4%) and Southeast Asia Region (2%), with India contributing almost 83% of the cases. The Western Pacific Region accounts for 0.7%, whilst the Region of the Americas contributes 0.3% to the global malaria cases. The WHO European Region 2015 has declared a malaria-free zone (World Health Organization, 2021b).

Figure 3-2 also shows that the number of global malaria deaths fluctuated but steadily decreased between 2001 and 2015 and slightly increased just as the number of new cases within the same period understudy. In 2000, the global malaria deaths stood at 896,000 deaths, followed by a steady decline up to 2019, with 558,000 deaths recorded. However, 2020 recorded a sharp increase in malaria deaths, with 627,000. The COVID-19 pandemic has been identified to have contributed to the rise in malaria deaths. Children under U5 years accounted for 67% (272,000) of all malaria deaths worldwide in 2018 (Global Health Observatory (GHO), 2018), witnessing an increase to 77% in 2020 (World Health Organization, 2021b). The WHO African Region accounts for about 96% of the global malaria mortality.

### 3.2.2 African Malaria Burden

Africa remains the continent with the highest malaria cases and, therefore, accounts for the highest mortality rate in the world. The SSA experiences the heaviest burden of diseases, with children U5 being the worst affected (Cibulskis et al., 2016; World Health Organization, 2021b). Efforts to eradicate malaria have yielded significant results, albeit in a slow space. In 2000, the African Region recorded 207 million malaria cases and experienced oscillations in malaria cases (See: Figure 3-3). In 2015, the region recorded 204 million malaria cases and, a sharp increase to 228 million cases. SSA contributes to about 55% of global malaria cases, with Nigeria accounting for 26.8%, the Democratic Republic of the Congo 12%, Uganda 5.4%, Mozambique (4.2%), Angola (3.4%) and Burkina Faso (3.4%). Malaria in the region decreased between 2000

and 2019, with 368 cases per 1000 population at risk, 222 cases in 2019, and a sudden increase to 233 in 2020 due to the COVID-19 pandemic (World Health Organization, 2021b).

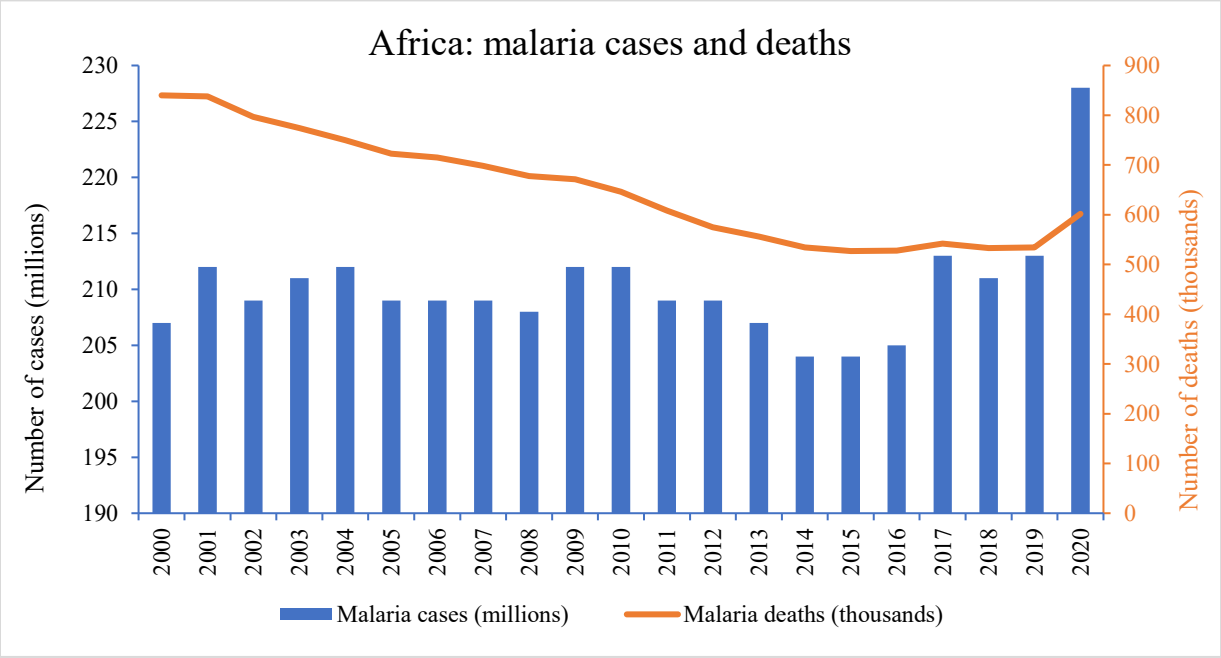


Figure 3-3: Malaria cases (millions) and deaths (thousands) in Africa, 2000-2020
Source: World Health Organization, 2021b

Despite the increasing trend of malaria cases in Africa between 2000 and 2020, deaths by malaria show a declining trend for the same period. In 2000, malaria accounted for 840 thousand deaths, 646 thousand in 2010 and 534 thousand in 2019. However, in 2020, malaria mortality increased to 602,000 (Figure 3.3), representing 96% of global malaria deaths (Figures 3.2 and 3.3). About four countries in Africa contribute over half of the worldwide malaria mortality: Nigeria (31.9%), DR Congo (13.2%), Tanzania (4.1%) and Mozambique (3.8%) (World Health Organization, 2021b).

Whilst countries such as Comoros, Botswana, Madagascar, and Eritrea witnessed an increase in malaria deaths by 40% in 2020, countries such as Angola, Nigeria, Uganda, South Sudan, Guinea-Bissau, Namibia, Liberia and the Democratic Republic of Congo witnessed an increase in mortality between 5% and 25%. Countries such as Ethiopia and South Africa reduced malaria mortality by 40%, while Cape Verde Eswatini and Sao Tome reportedly recorded zero malaria deaths in 2020. In 2019, Algeria was declared malaria-free. In Africa, it has been reported that there is a growing trend in malaria cases among U5. About 80% of global malaria deaths in 2020

were reported among children U5. In 2010, confirmed cases of malaria among U5 were recorded to be 11.9 million (38.9%), 21 million in 2015 (37%), and 22.7 million (38.9%).

### 3.2.3 Malaria Burden in Ghana

Malaria in Ghana is one of the causative diseases of illness and mortality among pregnant women and children U5. It also contributes significantly to the country's hospital attendance (GHS, 2011). The National Malaria Control Programme (2013) estimates that about 26 million Ghanaian people are at malaria risk. Environmental conditions such as rainfall and swampy vegetation cover create a conducive environment for mosquitoes to breed.

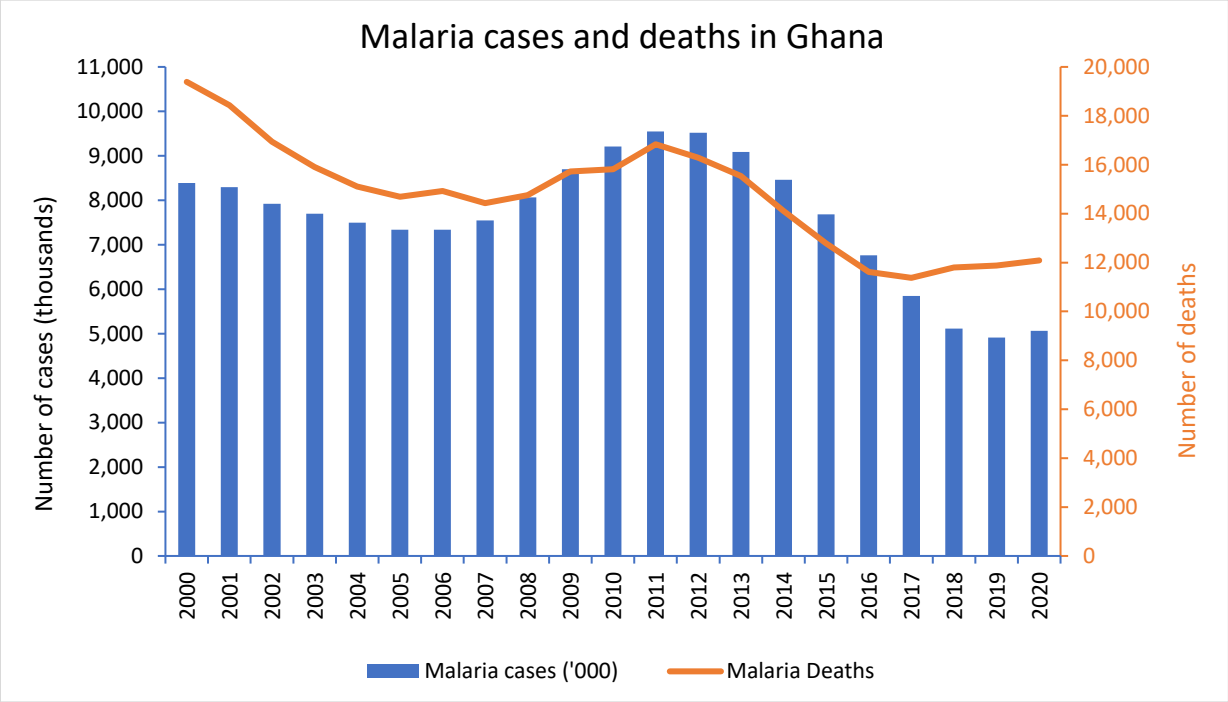


Figure 3-4: Malaria cases (thousands) and deaths in Ghana, 2000-2020
Source: World Health Organization, 2021b

Malaria cases in Ghana between 2000 and 2020 slightly fluctuated and declined. In 2000, the country recorded an estimated 8.4 million malaria cases, followed by a steady decline till 2008, then experienced a sharp increase to 8.5 million cases in 2014. Though the government failed to meet the MDG 4 target, it was able to reduce its malaria burden. Between 2015 and 2019, malaria cases decreased significantly from 7.68 million to 4.91 million but increased in 2020 (5.06 million cases) due to covid-19 disruptions (See: Figure 3-4). This development may be partially attributed to government policies tackling the country's menace.

As depicted in Figure 3-4, the malaria death trend in Ghana shows a normal distribution trend as the number of malaria cases increases. Between 2000 and 2020, the country witnessed a moderate decline in malaria deaths. In 2000, about 19,388 deaths were recorded, following a decline to 14,759 in 2008. The country saw a steady increase in malaria deaths between 2009 (15721 cases) and 2012 (16,282 cases). Malaria deaths increased from 11,877 in 2019 to 12,084 in 2020.

## 3.3 Child Health and Malaria: Global and Regional Analysis

Child health care is a worldwide priority reaffirmed by the introduction of MDGs (now SDGs), which have mandated countries and world leaders to reduce child and maternal mortality by 67% and 75%, respectively, between 1990 and 2015. Before this initiative, many interventions had been implemented to promote child health. The United Nations Educational, Scientific and Cultural Organization's (UNESCO) declared their interest in promoting child health through their pronouncement of 1979 as the International Year of the Child to draw attention to worldwide issues. This subsequently ushered in four decades of action for child health care and well-being.

Global initiatives in the 1980s were geared to improve child survival through vertical programmes tied to single issues, such as nutrition, immunization and treating childhood infectious diseases like diarrhoea, pneumonia and malaria (St-Onge et al., 2022). Actions adopted in this decade were focused mainly on U5 survival. This was crucial as the global U5 mortality rate was approximately 60% higher than today. The decade ended with the adoption of the United Nations Convention on the Rights of the Child in 1989, firmly asserting that health and well-being are rights for all children everywhere.

Following the UN Convention on the Rights of the Child, initiatives rolled out in the 1990s included the UN World Summit for Children and the Children's Vaccine Initiative, both launched in 1990. The World Summit for Children was intended to serve as a Plan of Action for national governments, international organizations, non-governmental organizations (NGOs) and donors. The plan of action was centred on child survival, protection and development. Specific to this action plan was for child survival to be achieved by all countries and formulated as 'a reduction of 1990 under-5 child mortality rates by one third' (United Nations, 2015). In the mid-

1990s, WHO, UNICEF and other collaborators created the Integrated Management of Childhood Illness (IMCI), which included three components addressing the healthcare system's readiness, case management skills of healthcare personnel, and family and community health practices(World Health Organization, 2021a). IMCI provides guidelines for the combined treatment of major childhood illnesses, emphasising disease prevention through immunization and adequate nutrition, considered the best strategies for fighting infectious childhood diseases.

The movement towards eliminating preventable deaths among children U5 gained momentum in 2000 through improvements in policy areas such as education, environment, health systems, health financing and the health workforce. This was the MDGs period focused on reducing maternal and child mortality between 2000 and 2015. The UN MDGs are recognized for mobilizing worldwide action on child health, resulting in an unprecedented, rapid decline in child mortality, with 58 nations meeting the MDG 4 target of reducing the U5 Mortality rate by two-thirds (World Health Organization, 2015a). Despite significant progress toward this goal, just a few nations have achieved this target. According to the UN, 24 out of the 82 low- or lower-middle-income countries met the MDG 4 objective (You et al., 2015). However, compared to previous patterns, the drop in the U5 mortality rate has accelerated since 2000, when the MDGs were announced (You et al., 2015).

Realizing the success and shortfalls of the MDGs, the SDGs were introduced in 2015. The SDGs recognize the relevance of a broader context on child well-being and development and an emphasis on quality of care and equitable health outcomes. SDG 3.2 expressly states, “By 2030, end preventable deaths of newborn babies and children U5, with all countries aiming to reduce neonatal mortality to at least as low as 12 per 1000 live births and under-5 mortality to at least as low as 25 per 1000 live births” (World Health Organization, 2015b).

As a result of the evolution of child health interventions over the past few years, it has become apparent that health and well-being are intertwined at every stage of life and across generations. Thus, there is a need for quality universal health care. The urgent need for quality universal health care was reaffirmed in the high-level UN resolution on Universal Health Care approved by the General Assembly in 2019 (World Health Organization, 2022). The resolution reiterated the commitment to the Sustainable Development Goals (2030 agenda) and the goal of achieving Universal Health Care by 2030. It also reaffirmed the need to minimize maternal, neonatal,

infant, and child mortality and morbidity and enhance access to quality healthcare for newborns, infants, and children, as well as all women before, during, and after pregnancy and delivery.

### 3.3.1 Global Malaria Burden among Children U5

Malaria is the leading cause of morbidity among children U5 (Dao et al., 2021). Between 2003 and 2015, governments, international organizations, and donor agencies concerted efforts to fight the disease, dramatically reducing malaria morbidity and death worldwide by 37% and 60%, respectively (WHO, 2015). Nevertheless, approximately half the world's population, or 3.2 billion people, remain vulnerable to contracting the disease. SSA countries bear a more significant percentage of the global malaria burden. In 2015, the region accounted for around 88% of worldwide malaria infections and 90% of malaria mortality (World Health Organization, 2015b).

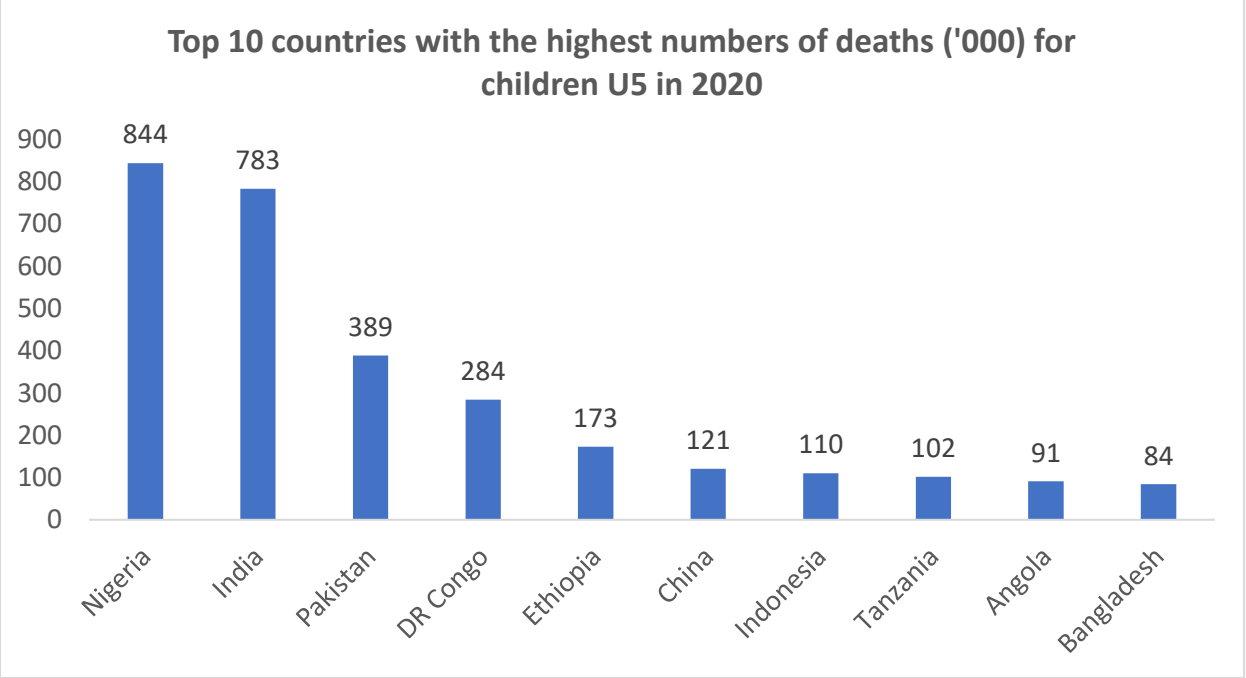


Figure 3-5: Top 10 countries with the highest numbers of deaths (thousands) for children U5 in 2020
Source: World Health Organization, 2022

After decades of control efforts, malaria still poses a severe public health threat, with 241 million estimated reported cases in 2020 (World Health Organization, 2021b) and 627 000 attributable deaths (the COVID-19 pandemic also plays a role in these figures due to service disruptions).

From Figure 3-5, about half of all U5 deaths in 2020 occurred in just 5 countries: Nigeria, India, Pakistan, DR Congo and Ethiopia. Nigeria and India alone account for almost 1/3 of all deaths.

Since then, global U5 mortality has seen a decline of about 44%, with a record of 356,363 deaths in 2019, with the African region accounting for 96% of the global deaths, followed by the South-East Asia region (2.8%) and the Eastern Mediterranean region (1.2%). The WHO reported that between 2000 and 2020, overall malaria mortality among children under five decreased from 87% to 77% (World Health Organization, 2021b), indicating progress but also revealing that more work needs to be done, especially in Africa. A child born in the highest mortality countries is estimated to have a 55 times higher risk of dying in the first month of life than in the lowest mortality countries (UNICEF, 2020). Since 2009, the European area has recorded no malaria U5 deaths, which can be attributed to the significant improvement in healthcare systems and infrastructure compared to that of low-income African countries. Although global actions and funding to eliminate the disease have resulted in some progress, malaria is still deadly among children U5.

### 3.3.2 Africa Malaria Burden Among Children U5

Africa bears a large percentage of the global malaria burden. In 2018, it was reported that up to 79% of children U5 diagnosed with malaria in high-burden regions of Africa had anaemia (World Health Organization, 2018). According to the World Health Organization (WHO), Africa accounted for 94% of all malaria mortality in 2018. Despite a relatively lower number of 180,000 deaths that year, the region was still responsible for 85% of the deaths recorded worldwide (World Health Organization, 2021a).

UNICEF's 2020 health statistics showed that the continent recorded 95% of malaria cases and 96% of deaths due to malaria. Children U5 accounted for an estimated 80% of all malaria mortality on the continent. A systematic assessment of malaria variation by age in seasonality, transmission intensity, and severity in SSA revealed that the clinical malaria burden is higher in younger age groups (Carneiro et al., 2010). Hospitalizations were also higher among younger children, with higher levels of deaths among infants (Carneiro et al., 2010). Accelerating efforts toward malaria eradication and malaria-free status by 2030 is one component of the African region's Global Technical Strategy for Malaria 2016–2030 (World Health Organization, 2022).

Table 3-2: Children U5 malaria mortality in some selected SSA countries

| Year | SSA | Ghana | Nigeria | Cote D'Ivoire | Botswana | South Africa |
|---|---|---|---|---|---|---|
| 2000 | 549,725 | 13,937 | 141,820 | 18,316 | 23 | 2 |
| 2001 | 569,721 | 14,956 | 145,973 | 19,562 | 13 | 17 |
| 2002 | 574,559 | 15,664 | 147,729 | 20,562 | 7 | 9 |
| 2003 | 590,116 | 17,024 | 151,611 | 21,499 | 5 | 6 |
| 2004 | 592,486 | 17,127 | 150,881 | 22,405 | 4 | 5 |
| 2005 | 579,048 | 17,171 | 153,320 | 22,707 | 2 | 3 |
| 2006 | 577,654 | 16,823 | 162,657 | 23,867 | 4 | 4 |
| 2007 | 571,481 | 16,939 | 167,927 | 24,368 | 4 | 2 |
| 2008 | 565,534 | 17,067 | 175,925 | 24,303 | 6 | 2 |
| 2009 | 558,149 | 16,817 | 174,579 | 23,626 | 5 | 2 |
| 2010 | 542,086 | 16,334 | 168,415 | 22,151 | 5 | 3 |
| 2011 | 512,961 | 15,725 | 161,182 | 20,218 | 1 | 4 |
| 2012 | 487,446 | 14,978 | 153,368 | 18,729 | 1 | 2 |
| 2013 | 465,724 | 14,055 | 146,253 | 16,172 | 1 | 5 |
| 2014 | 434,573 | 13,508 | 138,670 | 14,718 | 3 | 5 |
| 2015 | 413,722 | 12,596 | 126,073 | 14,884 | 1 | 0 |
| 2016 | 384,191 | 11,591 | 106,104 | 15,414 | 2 | 1 |
| 2017 | 355,340 | 10,587 | 93,395 | 14,981 | 4 | 12 |
| 2018 | 344,915 | 10,618 | 96,005 | 13,546 | 5 | 13 |
| 2019 | 345,485 | 10,112 | 95,636 | 13,994 | 6 | 39 |

Source: Global Burden of Disease Collaborative Network, 2021

In Africa, U5 malaria mortality is prevalent in the SSA region (See: Table 3-2), with more deaths evident in West Africa than in other parts of Africa. Between 2000 and 2019, Nigeria recorded the highest number of U5 malaria deaths, with a peak of 175,925 deaths in 2008. In 2019, the country recorded 95636 deaths, marking a decline of about 33% in U5 malaria deaths between 2000 and 2019. Similarly, Ghana and Cote d'Ivoire also recorded a reduction in U5 malaria deaths by 27% and 24%, respectively, between 2000 and 2019. The Botswana and South Africa cases indicate that U5 malaria deaths are relative to Southern parts of Africa. Both countries

seem to have no problem with U5 malaria mortality, with the highest number in Botswana being 23 in 2000, and in 2019 recorded 6 U5 malaria deaths. South Africa also has relatively low U5 malaria deaths compared to other parts of Africa, with 2 deaths in 2000 and 39 deaths in 2019. This suggests that some countries in Africa are making significant gains in fighting malaria among U5 whilst others are far behind. Although there was a general decline in the U5 malaria death trend across Africa between 2000 and 2019 due to various global and national malaria interventions, the reduction in U5 malaria deaths is slower than expected. The number of U5 malaria deaths in most parts of Africa is still alarming and requires urgent action.

### 3.3.3 Ghana U5 Malaria Burden

Ghana is one of the 15 nations with the highest malaria burden, accounting for 2% of worldwide malaria cases and 3% of deaths due to malaria (Severe Malaria Observatory, 2022). Since 2000, out-of-patient (OPD) and in-patient U5 malaria cases have increased. OPD U5 malaria cases increased from 516 thousand to 3.1 million between 2000 and 2012, whilst in-patient U5 malaria cases also rose from 27,478 to 177,836. In 2016, malaria was responsible for 10.4 million OPD visits, with a case fatality rate of 0.32 among children U5 (Dao et al., 2021). This is extremely significant.

In the same year, the East Akim District of Ghana's Eastern Region recorded the highest prevalence (34.1%) of malaria rapid diagnostic tests (m-RDT) among children aged 6 to 59 months (Ghana Statistical Service, 2016). Reported malaria cases among children U5 gradually increased from 12% in 2016 to 33% in 2017 due to improved access to testing (WHO, 2019). If the rate continues to rise, it can only mean malaria among children U5 can be detected and treated early. In 2016, it was identified that 73% of homes had at least one insecticide-treated net (ITN), but utilization rates were lower. Net usage among pregnant women and children U5 was 52% and 50%, respectively (USAID, 2020).

Malaria kills at least three children daily. In 2000, the U5 malaria death rate was 458, with a sudden rise in the death trend peaking at 528 in 2003. Since then, U5 malaria deaths have fluctuated but declined to 255 deaths in 2019 (See: Table 3-3: Malaria death rate by age).

Table 3-3: Malaria death rate (per 100,000 individuals) by age: U5 and other ages in Ghana, 1990-2019

| Year | U5 | All Ages | 70+ years | 50-69 years | 15-49 years | 5-14 years |
|---|---|---|---|---|---|---|
| 1990 | 365.45 | 91.72 | 243.09 | 125.52 | 22.57 | 11.32 |
| 1991 | 375.74 | 95.03 | 287.43 | 133.59 | 23.88 | 12.22 |
| 1992 | 381.19 | 96.49 | 298.62 | 139.19 | 24.83 | 12.74 |
| 1993 | 386.29 | 97.32 | 303.90 | 141.61 | 25.35 | 12.97 |
| 1994 | 388.52 | 97.99 | 312.45 | 145.82 | 26.04 | 13.12 |
| 1995 | 393.64 | 99.55 | 324.06 | 151.65 | 26.99 | 13.34 |
| 1996 | 404.79 | 102.66 | 341.26 | 160.40 | 28.36 | 13.69 |
| 1997 | 417.81 | 106.96 | 365.38 | 172.46 | 30.49 | 14.47 |
| 1998 | 432.34 | 111.13 | 388.22 | 182.70 | 32.24 | 15.05 |
| 1999 | 445.52 | 115.26 | 413.42 | 193.94 | 34.05 | 15.62 |
| 2000 | 458.16 | 119.09 | 365.08 | 212.10 | 36.94 | 16.39 |
| 2001 | 482.30 | 128.21 | 489.90 | 228.80 | 39.78 | 18.41 |
| 2002 | 495.28 | 132.10 | 430.16 | 247.42 | 42.83 | 19.70 |
| 2003 | 527.70 | 139.58 | 535.32 | 248.16 | 43.01 | 21.93 |
| 2004 | 520.35 | 138.81 | 543.28 | 251.22 | 43.38 | 22.52 |
| 2005 | 511.28 | 137.78 | 549.20 | 253.96 | 44.03 | 22.80 |
| 2006 | 490.94 | 133.52 | 455.99 | 260.60 | 45.21 | 22.68 |
| 2007 | 484.65 | 134.42 | 560.42 | 259.87 | 45.16 | 23.44 |
| 2008 | 479.24 | 136.00 | 489.64 | 284.43 | 49.29 | 24.12 |
| 2009 | 464.22 | 132.80 | 481.65 | 282.91 | 49.18 | 23.63 |
| 2010 | 444.20 | 128.46 | 472.79 | 280.57 | 48.79 | 22.61 |
| 2011 | 422.18 | 120.64 | 437.06 | 261.19 | 46.23 | 21.24 |
| 2012 | 397.70 | 113.27 | 410.88 | 247.89 | 43.85 | 19.70 |
| 2013 | 369.62 | 103.71 | 371.62 | 225.86 | 40.27 | 17.70 |
| 2014 | 352.29 | 95.72 | 405.14 | 195.37 | 35.11 | 15.96 |
| 2015 | 326.11 | 84.69 | 282.79 | 172.72 | 31.54 | 13.71 |
| 2016 | 298.00 | 75.33 | 297.42 | 143.96 | 26.9 | 11.69 |
| 2017 | 270.44 | 68.15 | 271.95 | 131.74 | 24.58 | 10.35 |
| 2018 | 269.54 | 71.06 | 304.49 | 145.39 | 26.86 | 11.29 |
| 2019 | 254.66 | 68.48 | 304.31 | 144.12 | 26.46 | 10.64 |

Source: Global Burden of Disease Collaborative Network, 2021

The diverse malaria health initiatives and interventions implemented by the government, international agencies, and donor organizations have reduced malaria deaths among children U5. However, it cannot be denied that the number of U5 malaria deaths is still very significant. This raises questions about the impact of malaria policies and interventions and whether these policies and interventions are enough to achieve substantial gains in reducing U5 malaria deaths in the country or require some modifications in formulation and implementation.

### 3.3.4 Malaria Control: Treatment and Prevention

The key elements of controlling malaria are treatment and prevention. The typical treatment of uncomplicated malaria is Artemisinin Combination Therapy (ACT), which has become generally acceptable due to its effectiveness in combating the disease, especially falciparum malaria. The plasmodium falciparum parasite has grown resistant to the previously commonly used drug Chloroquine (CHQ) and other antimalarials. ACT is effective against all four Plasmodium species, threatening human life and reducing malaria transmission.

The WHO recommends four main ACTs: Artesunate-Amodiaquine, Artemether-Lumefantrine, Artesunate-Sulfadoxine-pyrimethamine, and Artesunate-mefloquine.

Studies have reported the efficacy of ACT in Africa and other parts of Asia. In Thailand, it was reported that using ACTs combination, specifically artesunate (AS) and mefloquine, reduced malaria transmission and stopped the resistance of antimalarial drugs by the plasmodium parasites (Kachur et al., 2004). A combination of AS-AQ is very safe and highly effective in Zanzibar and Burundi, with minor side effects in countries such as Gabon, Ghana, and Saotome and Principe (WHO, 2006). In Congo, AS-AQ has been adopted for first-line treatment due to its high efficacy against uncomplicated malaria (Swarthout et al., 2006). Similar findings have been reported in Senegal, Nigeria, Tanzania, and Kenya (Falade et al., 2005; Argnamey et al., 2006). The Rollback Malaria (RBM) initiative (2000-2015) by WHO, UNICEF, United Nations Development Programme (UNDP), and the World Bank recommends the use of ACTs for the treatment of malaria. It is reported that as of the end of 2005, about 35 African countries had adopted ACTs for malaria treatment; 15 selected AS-AQ, 19 chose Artemether-Lumefantrine and the remaining used AS + SP (World Health Organization, 2015b). Due to its deadly nature, Breman et al. (2004) note that “early diagnosis and effective treatment of malaria will shorten its duration and prevent complications which may result in death”.

For malaria prevention, vector control methods such as Indoor Residual Spraying (IRS), which involves spraying walls and various room parts with chemical insecticides using Treated Bed-Nets (ITN), have been commonly used to prevent infection. Intermittent Preventive Treatment (IPT) is also encouraged for pregnant women. This involves the administration of a curative anti-malarial called sulphadoxine-pyrimethamine during antenatal care, irrespective of whether there is a plasmodium parasite. IRS is widely considered one of the most effective vector control

strategies for malaria transmission. It entails spraying long-acting chemical insecticides on the outside walls and roofs of buildings. This aids in the elimination of adult mosquitoes that settle on such surfaces (World Health Organization, 2015b). IRS's involvement in malaria infection reduction is widely recognized and supported by scientific data (Mabaso et al., 2004; Loha et al., 2012).

Success in combating malaria has been described as encouraging and closely tied to sustained investment (UNICEF, 2022). However, there has recently been a plateau in global malaria response funding. Investment for malaria control and elimination globally was USD 3.1 billion in 2017. That was 47% of the expected amount by 2020. The USA was the largest single international donor for malaria in 2017 (Patouillard et al., 2017; World Health Organization, 2018). In 2019, funding (both domestic and international) for malaria control and elimination stood at a total of $3 billion, which was less than half of what was needed. The goal of a malaria-free world can be achieved when annual funding exceeds the $6.6 billion target (World Health Organization, 2021b).

### 3.3.5 Traditional Medicine and Malaria Treatment

As discussed above, the use of scientific antimalaria drugs in case management of malaria remains the most extensive approach sanctioned by WHO. Despite being marginalized, the role of traditional medicines in the treatment of malaria and other disease cannot be overemphasized, especially in Africa, Asia and Latin America. About 80% of Africa's population was estimated to rely on traditional practitioners and herbal medicines for primary health care (Asafo-Agyei et al., 2019).

Several reasons account for the reliance on traditional medicines as first-line treatment, such as easy access, affordability, cultural beliefs, and effectiveness with no or minor side effects (Graz et al., 2011; Gyasi et al., 2011). Scientific medicines are deemed expensive and dangerous, with serious side effects (Ampomah et al., 2022). Although significant gains have been made in malaria treatment with modern medicines, the growing concern in the emergence of new breeds of the plasmodium parasites, which keep developing strong resistance against scientific anti-malarial drugs as witnessed in previous first-line treatments such as chloroquine Sulfadoxine and Pyrimethamine and several insecticides continue to empower many people to resort to traditional

medicines (Asafo-Agyei et al., 2019). Moreover, the use of traditional medicines has increased due to the knowledge that major antimalaria drugs such as artemisinin and quinine (Christensen & Kharazmi, 2001; Hsu & Obringer, 2010) and antihypertensive and anticancer drugs trace their origin from plants used for traditional medicines (Cragg et al., 2005).

About 80% of Ghana's population is estimated to resort to traditional medicines for their primary health needs. A study by Peprah et al. (2019) in Ghana, for instance, reported that many expectant mothers relied heavily on herbal medicines to treat conditions such as abdominal pains, constipation, to safeguard pregnancies and safe childbirth. Traditional medicine in the country involves medicinal plants and spiritual or faith healing (Ampomah et al., 2022). The prevalence of traditional medicine use among the populace has led to attempts by the government to integrate traditional medicines in the health care system.

Studies into traditional medicines have revealed that various plant species and parts are used for treating malaria (Komlaga et al., 2016; Asafo-Agyei et al., 2019). In a study involving over 30 registered herbalists of the Ghana Federation of Traditional and Alternative Medicine (GHAFTRAM), Asafo-Agyei et al. (2019) identified that various plant parts, which include leaves, roots, stem barks, seeds, and even whole plants were used in making medicines mostly by boiling in water to treat malaria mostly by drinking the solution. The study identified 42 plant species from 27 families used to make antimalaria traditional medicines. Most of the plants identified belonged to the families *Rutaceae*, *Meliacea* and *Fabaceae.* Most of the respondents indicated collecting these plants from the wild. Traditional medicines come in the form of liquids, syrups, and powders sold in pharmacies, marketplaces, buses, and, in some cases, hospitals.

Whilst traditional medicines are commonly used, their risks are not without doubt. Many people believe that because herbal medications are “natural,” they must be safe, hence choosing it over conventional medication to avoid adverse effects (Fraenkel et al., 2004). However, like modern pharmaceuticals, herbal medications are not without risk, can cause adverse effects, and are not necessarily safer than conventional pharmaceuticals (Farah et al., 2000). The prevalent uses of traditional medicines in treating malaria have, however, generated calls for inclusion in national malaria control programmes as alternative or complementary antimalaria drugs (Graz et al., 2011).

## 3.4 Eradication of Malaria Among U5 in Ghana: Overview of Child Health Malaria Policies

This section provides an overview of the evolution and development of malaria control programmes and policies in Ghana from before independence until the current dispensation. The intent was to provide a historical perspective on malaria control to maintain institutional memory on malaria control in the country to understand what has worked and what has not and what needs revision or reform.

### 3.4.1 History of Malaria Prevention and Control in Ghana

#### 3.4.1.1 Malaria control Between 1900 – the 1940s

SR Christophers and Stephens (1900) investigated Accra, Jamestown and Christianborg in May 1900 and reported their findings to the Royal Society's Malaria Committee the same year. The results from their observations and recommendations were to inform policies on malaria control in the Gold Coast (previous name for Ghana) colony for the next three decades. From the investigation and observation of various mosquito breeding sites, huts, villages and European dwellings, they concluded that the "native is the prime agent in the malaria infection of Europeans" and that there was a need to separate the "native" dwellings from that of the European settlements and also ensure that "all wet-season pits and excavation areas are filled in to prevent mosquito breeding". The British colonial government developed policies with accompanying expenditures to control malaria on the Gold Coast, aiming to improve the health of Europeans. From 1914 onwards, various interventions were undertaken to prevent malaria on the Gold Coast. Environmental management and household screening were promoted, which involved "the filling in of pits and borrows, drainage, an inspection of tree stumps left as a result of building the railway, screening water tanks and pots, oiling (especially of ponds at Christianborg), the use by officials of a mosquito cage over the beds in their bungalows, house screening and fumigation using sulphur or compho-phenique" (NMCP, 2013). In addition, measures were put in place to plan mining towns to reduce the breeding of mosquitoes.

In the 1920s, other measures to control malaria are summarised as follows: "Drainage and reclamation of lagoons and swamps, the filling of ponds and borrow pits, the laying of "Dutch" drains in connection with seepage areas, the construction of concrete drainage systems, the

treatment of low-lying areas incapable of being economically drained or filled by oiling or by treating with copper eceto-arsenite (Paris Green), the inspection of school children, the distribution of quinine at hospitals and clinics, the encouragement of segregation, of the use of nets, of mosquito proofed premises and prophylactic quinine by non-immunes, the enforcement of rules relating to residential areas, the educative propaganda using Health Weeks and public lectures and hygiene lessons in schools, form but a few of the methods by which the incidence of malaria is attacked" (NMCP, 2013).

It is reported that between 1942 and 1945, the British built a military hospital in Accra to segregate 200 European and 800 African beds. The burden of malaria was very high at the facility, especially among the European personnel. British and American personnel, therefore, tried to "dredge the Korle lagoon in Accra, larviciding (Paris Green), fogging of surrounding areas (pyrethrum) and spraying of neighbouring houses using dichloro diphenyl trichloroethane (DDT) from 1944 within a one-mile radius, later extended to an eight-mile radius of the lagoon followed by an experiment with aerial spraying with DDT at the Korle, Klotey and Sakumono Lagoons" (Roberts, 2010). All these interventions were to control and eradicate malaria, mostly among the Europeans.

#### 3.4.1.2 Malaria Control 1950 to 1990s

In 1950, the WHO convened the first malaria conference in Equatorial Africa held in Kampala, Uganda (WHO, 1951; Dobson et al., 2000). The conference aimed to analyse all information on the epidemiology of malaria to control and eradicate it through research and other means. This led to various chemical trials such as Chemoprophylaxis trials comprising of amodiaquine-pyrimethamine school children prophylaxis trials in Accra, pyrimethamine trials among the military in Accra, daraprim prophylaxis trials, in Ho district, primaquine trials, Lapudrine prophylaxis trials among school children in Ashanti, and medicated salt project in Bawku West. Other projects, such as the "Ghana 1 project" were also initiated, a collaboration between the MoH, UNICEF and the WHO primarily focused on describing the epidemiology in the Volta Region. The main goal of the project was to "increase access to anti-malarial drugs, build technical expertise in malaria reconnaissance and control, establish an epidemiological intelligence in the Volta region, after the construction of the Akosombo Dam, and develop a country plan for malaria eradication" (NMCP, 2013:35).

However, these interventions failed to live up to expectations and, coupled with abandoning the malaria eradication goal in Africa. The WHO recommendations in 1969 led to a sense of disappointment and reluctance by national and global governments to commit resources to eradicate poverty. Interventions to eliminate malaria were, therefore, less pronounced in the mid-1960s. Since then, interventions to control malaria in Ghana have been piecemeal. However, with the increasing growth in population and shanty towns, malaria control became difficult as cases continued to soar.

Controlling malaria had, therefore, fallen off the health agenda of Ghana, and till 1990, there was no national policy or plan to eradicate malaria. In the early 1990s, malaria control came on the global agenda again. In 1992, the WHO introduced a global control strategy to prevent and reduce morbidity and mortality (WHO, 1993)—following that, Ghana introduced a Malaria Action Plan (1993-1997) with a key objective to "reduce the incidence of malaria to such low levels that it will cease to be a public health hazard". The plan focused on various approaches such as: 1) increasing the knowledge and skills of health workers on malaria, 2) strengthening the capacities of health services to diagnose and treat malaria, 3) increasing community awareness and participation in malaria activities within primary care, 4) make antimalarial drugs available and affordable to the general population, 5) establish surveillance systems and determine the pattern and extent of malaria transmission in the country (MoH, 1991). The plan highlighted some vector control approaches, such as IRS and bed net use, and other strategies, such as outdoor space spraying (MoH, 1991).

### 3.4.2 Child Health Malaria Policies

For this study, three central child health policies to eradicate malaria among U5 were examined: the NHIS and free maternal health care programme; Roll back malaria initiative (Indoor Residual Spraying (IRS), the use of Insecticide Treated Bed-Nets (ITN)); and Anti-Malaria Drug Policy in Ghana.

#### 3.4.2.1 The NHIS and Free Maternal Health Care Programme

The introduction of the NHIS has been marked as one of the government's significant achievements toward universal health coverage. The scheme was introduced at a time when the country was experiencing high rates of maternal and child mortality. It is reported that between

1990 and 2005, the maternal mortality ratio fell within the range of 500 to 600 deaths per 100,000 live births (Amuah et al., 2013). Pregnancy-related maternal mortality was estimated at 580 per 100,000 according to the Ghana Maternal Health Survey in 2007 (Twum et al., 2018). The trend indicated that the country was not close to achieving the Millennium Development Goal (MDG) 5, which called for a 75% reduction in maternal mortality by 2015. Maternal mortality was declared a national emergency in 2008 (MoH, 2008). The Free Maternal Health Care Programme (FMHCP) was introduced under the existing NHIS in 2008 to reduce the maternal mortality rate in the country. The FMHCP exempted all pregnant women from paying premiums and all other registration and processing fees under the NHIS. It gave pregnant women free access to join the NHIS and their new-borns to be covered after childbirth. Pregnant women are allowed access to medical care and services, which include antennal care (free services and medicines and 6 visits and 2 ultrasounds); delivery services (free services and medicines with an NHIS-accredited provider); post-natal care (free services and drugs for 2 post-natal visits); neonatal care (3 months of services for new-born under mother's valid NHIS card); any other medical care services covered by the NHIS) (Asenso-Boadi, 2011).

Implementing FMHCP has increased the access and utilization of antenatal and supervised or facility-based deliveries. In 2007, facility-based deliveries peaked at 300,000 but increased to about 500,000 in 2011 after the programme's introduction (Amuah et al., 2013). The utilization rate of medical services for pregnant women was 66% in 2011, and the institutional maternal mortality ratio reduced from 230 per 100,000 in 2007 to 170 in 2011 (GHS, 2011). As of 2013, about 774,009 pregnant women had registered under the programme. Previous studies have shown that the programme has enhanced access and utilisation of institution-based deliveries, and post-natal services have positively impacted U-5 health outcomes prior to its inception (Bonfrer et al., 2016; Twum et al., 2018; Amoako, 2019). However, this policy has an implementation challenge due to limitations in the distribution of health facilities nationwide. But again, it was a good step towards improving maternal and child healthcare in Ghana.

#### 3.4.2.2 Roll Back Malaria (RBM) initiative (2000-2015)

In 1998, the WHO, UNICEF, the United Nations Development Programme (UNDP), and the World Bank came together to establish the Roll Back Malaria Partnership (RBM) with the sole aim of reducing malaria mortality by 50% by the year 2010 and to achieve Millennium

Development Goal Six (MDG 6) by 2015. Therefore, the RBM sought to promote sustained delivery and adoption of effective prevention and treatment measures in countries with high malaria incidence. The introduction of the RBM initiative eventually led to the development of the first National Malaria 10-year Strategic Plan (2000-2010) to reduce malaria's morbidity and mortality by 50%. The plan was subsequently reviewed with a new strategic plan (2008-2015) to inculcate new developments and goals regarding eradicating malaria in the continental and international arena. The plan sought to provide a framework for the planning and programmes along a "continuum of care for mother and child - pregnancy, birth and immediate newborn period, neonatal period, infants and children" (MoH, 2007:1).

The policy called for a child-centred approach in the implementation of child health policies in a more collaborative approach involving key stakeholders such as: " a) other health units and divisions; b) development partners; NGOs; d) non-government workers and volunteers including - community-based volunteers (of several different categories), private providers (of clinical and preventive care), mission or faith-based providers (such as CHAG), community groups or organizations such as faith-based organisations, traditional healers, civil society organisations, NGOs e) other sectors including - the Ministry of Food and Agriculture (MoFA), Ministry of Women and Children's Affairs (MOWAC), Department of Social Welfare and other MDAs, Ghana Education Service, and District Assemblies" (MoH, 2007:7). The policy's main goal was to promote the survival, growth and development of all children in Ghana towards reducing child mortality to 40 per 1000 live births by 2015. The policy provided specific interventions for preventing and treating child-related diseases and sicknesses such as malaria, dysentery, pneumonia, diarrhoea, HIV, child-related injuries, and other illnesses.

Still unable to significantly reduce malaria cases, the National Malaria Control Strategic Plan (2014-2020) was introduced to reduce malaria morbidity and mortality by 75% by 2020, with 2012 as the baseline year. These initiatives mainly entailed: Indoor Residual Spraying (IRS), which involved spraying walls and various parts of the room with chemical insecticides, the use of Insecticide Treated Bed-Nets (ITN), and Artemisinin-based Combination therapies (ACTs).

#### 3.4.2.3 Anti-Malaria Drug Policy in Ghana

The WHO has championed the anti-malaria drug policy. WHO (1994) stresses that it is the set of recommendations and regulations regarding antimalarial drugs and their uses in a country. Therefore, the WHO recommended that countries develop national anti-malaria drug policies to guide treating malaria cases. The procedure specifies which drugs can be used for uncomplicated or second-line severe or complicated malaria treatment. As a result, in 2004, the National Anti-Malaria policy in Ghana. The policy mainly sought to officially declare the appropriate drugs for treating malaria. The policy relied on recommendations by task force experts who were made up of policymakers, social scientists, policymakers, epidemiologists, public health physicians, clinicians, and drug regulatory bodies on the efficacy of the long-used malaria drug chloroquine (CHQ). The task force's findings about the drug's effectiveness revealed the need to replace CHQ, the first-line drug for malaria treatment over the years, with a more efficacious drug with no resistance to the malaria parasite. The policy recommended the cessation of CHQ to treat malaria in the country and adopted the AS-AQ drug.

The national anti-malaria policy was revised in 2009 with new drug recommendations. The main objective of the policy is "to provide prompt, safe, effective and appropriate antimalarial treatment to the entire population" (2009:7). The policy recommended using Artesunate-Amodiaquine Combination as the combination drug of choice to treat uncomplicated malaria. It is recommended that Artemether - Lumefantrine Dihydroartemisinin Piperaquine be used as an alternative first-line drug for patients who cannot tolerate the Artesunate-Amodiaquine combination. The policy recommends using Oral Quinine or a combination of oral quinine and clindamycin for pregnant women with uncomplicated malaria in their first trimester. Oral Quinine or the combination of Artesunate-Amodiaquine or Artemether–Lumefantrine is recommended for those in the second and third trimesters.

### 3.4.3 Conceptual Framework

This study shows that an effective health system governance directly influences positive health outcomes. A practical or functional health system governance creates an avenue for building and maintaining the social relations that ensure sustained resource redistribution through strategic policy, reliable funding, effective institutions and the inclusion of actors and socially

marginalized population groups for interaction within all decision-making activities (Freedman et al., 2005). Establishing a functional health system governance in Ghana requires an in-depth understanding of the various institutions, policies, political-administrative structure, reliable funding, actors and environmental factors, and how these instruments influence health care service delivery. The study's three components of health system governance were identified as crucial to positive child health outcomes: governance and leadership, health financing, and service delivery (as conceptualised in Figure 3-6).

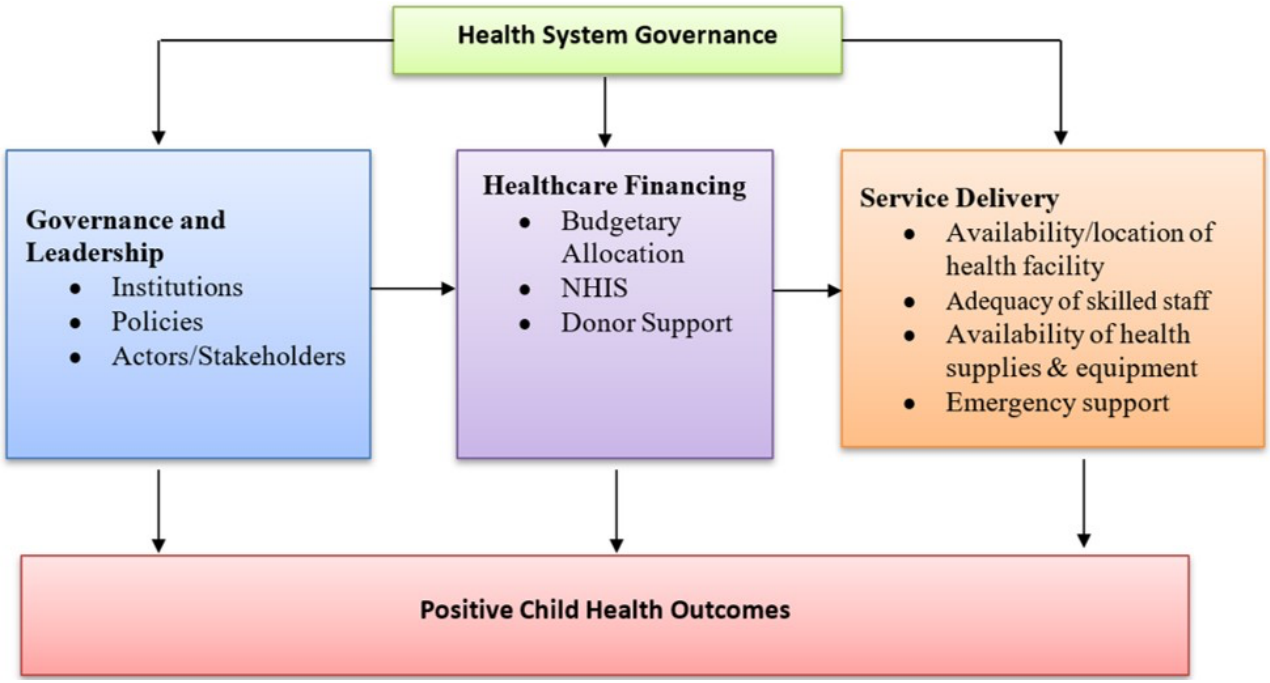


Figure 3-6: Conceptual Framework: Functioning Health System Governance
Source: Authors own construction

Any country's populace's improvement and quality of health have been linked to governance and leadership. Discussions on quality healthcare systems in any country cannot be complete without emphasising the critical role of good governance and leadership. Good governance and leadership entail the establishment of legislative and institutional frameworks to oversee and guide all activities in the country's health system involving public and private health facilities to promote and improve health outcomes (University of Ghana, 2018). Therefore, good governance and leadership in the health system demand both technical or professional and political actions to satisfy the various competing demands for the limited national resources as far as well improved health outcomes are concerned. In Ghana, providing quality health care to citizens is a

constitutional obligation of the government (Republic of Ghana, 1992, Article 36/10). This has led to various legislations and institutional bodies to regulate the health sector. Top political actors, policymakers, and health professionals in the different institutions are mandated to provide leadership in developing health policies that leverage positive health outcomes. The governance structure in the health sector depicts a similar arrangement to the decentralised local governance structure. The decentralised governance structure presents a range of political, professional and non-state actors who must interact and collaborate to ensure that ordinary Ghanaians at the community level have access to quality health care. These interactions have led to various health policies to promote quality health for the populace. However, the governance structure is dominantly top-down regarding policy-making and budgetary decisions, encouraging more political influences in health decisions (Couttolenc, 2012). The top-down approach to policy formulation and implementation may significantly contribute to the failure of policies in the country due to a lack of adequate understanding of the problems these policies are to resolve (Antwi et al., 2008).

Adequate healthcare funding is critical if the country achieves positive health outcomes. There are several revenue streams for health financing in Ghana. The dominant financing scheme is the NHIS. The extent to which the scheme is effectively undertaken and made more available and accessible in urban and rural areas would make health care affordable to citizens, thereby increasing access to health care, especially among people experiencing poverty (Dalaba et al., 2012). In addition, early payment of claims to NHIS-accredited providers would enhance access and utilization of health services.

Additionally, adequate budgetary support from the government and donor support is necessary to enhance the affordability and access to health care and improve health service delivery. However, evidence suggests that donor support is declining (University of Ghana, 2018). The extent of funding for health would affect service delivery.

Service delivery is very critical to achieving positive child health outcomes. Quality service delivery depends on the availability and location of health facilities, the availability and adequacy of skilled health workers, the availability of health facilities and equipment in health facilities and emergency support (Dalinjong et al., 2018). Service delivery is crucial because it is at this level that health policy outcomes are realised. The availability and nearness of health

facilities are important to quality service delivery. Health facilities are either unavailable or far to reach and may require additional transportation costs, which hampers health care access, especially for rural people (Kerber et al., 2007).

Another critical service delivery factor is the availability of adequate skilled health workers. According to the Ghana Health Service, out of about 115,650 public health workers, 58% were nurses and midwives in 2019, representing an increase of 370% between 2008 and 2018 (GHS, 2019). However, despite the rise, there are still clear signs of lingering workforce shortage and inequitable distribution of health workers in health facilities across the country, predominantly skewed to urban communities (Salisu et al., 2009; University of Ghana, 2018). Most health workers are reluctant to accept postings to rural areas due to poor health facilities, work environments, and insufficient medical supplies (Dalinjong and Daar, 2012; Asamani et al., 2019).

Dalinjong et al. (2018) reported in their study that health facilities at the district and community levels mostly lack basic essential health equipment such as laboratory tests, reliable water supply, electricity, drugs, and other medical supplies, and emergency support services.

The conceptual framework (in Figure 3-6) shows that positive child health outcomes depend on governance, leadership, adequate funding, and service delivery. Effective governance and leadership entail the interaction between the various actors and institutions, resulting in the development of health policies as well as decisions on adequate funding for health towards quality service delivery (health facilities are readily available and easily accessible, availability of adequate skilled workers and other basic essential health resources).

## 3.5 Some Empirical Evidence on U5 Mortality

Some scholars (Abu et al., 2015; Afoakwah et al., 2015, 2018; Bigdeli et al., 2020; Chowdhury, 2013; DaVanzo et al., 1983; Florey et al., 2017; Kanmiki et al., 2014; Kerber et al., 2007; Nyaaba et al., 2020; Pyone et al., 2017; Worku et al., 2021) have attempted to assess some determinants of U5MR in countries in recent years. For instance, mothers' age at birth, place of delivery, sex of the baby, baby size or weight at birth, and breastfeeding were significant determinants of under-five mortality. Chowdhury (2013) examines determinants of U5MR in Bangladesh: father’s education, region of residence, place of residence, number of children U5,

previous death of siblings, mother's age and breast-feeding have significant implications for U5MR in the country. Abu et al. (2015) examine the prevalence and the socioeconomic and demographic determinants of U5MR in Benue State, Nigeria. The analysis showed that educational status, wealth, mothers' age, and breastfeeding length affect child survival in the country. Worku et al. (2021) attempted to verify some determinants of U5MR in Ethiopian regions. Their results show that parity, multiple births, antenatal clinic visits, and preceding birth intervals were significant predictors of under-five mortality in the country.

DaVanzo et al. (1983) reveal a higher risk of death in low birthweight and children born to mothers below 18 and above 40 in Peninsular Malaysia. Focusing on 28 developing countries, mainly in Asia and Latin America, Hobcraft et al. (1984) found that mothers' and husbands' education, occupation and residence were associated with child mortality.

Insecticide-treated nets (ITNs) are highly effective at lowering malaria morbidity and mortality in children (Florey et al., 2017). Evidence from scholars (Chaudoir et al., 2013; Durlak & DuPre, 2008; Knoepfel et al., 2010; Potůček et al., 2016) confirm that policy implementation indeed impacts or influences the outcomes of an intervention and highlights the importance of understanding which factors affect implementation by looking at elements both in the context outside the organization of focus and also looking at cultural and values settings as well as management features within an organization or state. It also seeks to understand the forces influencing why and how policies are initiated, developed or formulated, negotiated, communicated, implemented and evaluated, including how researchers influence policymaking. The latter includes considering whether and why routine practices differ from, and may even contradict, formal policies and generate an implementation gap between policy intentions and common practice. The theory recognises that policy formulation and implementation is a political process. It, therefore, acknowledges the significant role of all key actors and seeks to explain the forces that empower or disempower competing groups in the political process. It adopts a pluralist view that recognises the political process as a market comprising various groups with competing interests where limited powerful actors exist.

In Ghana, Kanmiki et al. (2014) show that mothers' age, educational level, and marital status affect U5MR in rural northern Ghana. Nyaaba et al. (2020) investigate the strength of the linkage between socio-economic, maternal, and environmental determinants and U5MR in Ghana using

data from the 2014 Ghana Demographic and Health Survey. The results show that children of women with secondary education and above and women with middle-wealth status are less likely to experience U5 deaths than women with no education and those with low-wealth status. Similarly, women who had their first birth at 20-29 years old were less likely to experience U5 deaths than those aged 15-19. Women who used boreholes/healthy water were more likely to experience under-five deaths than those who used piped water. They stress a need for increased maternal education, delayed childbearing, and improved drinking water and toilet facilities to reduce U5MR in Ghana. Kwarteng Acheampong & Eyram Avorgbedor (2017) find a positive relationship between the mother's age, maternal marital status, breastfeeding, mother's education, and source of drinking and U5MR in Ghana.

Insecticide-treated bed net usage among children improves their survival rates. Thus, children's U5 mortality under treated bed nets is about 18.8% lower than those without sleep under treated bed nets. While health facility delivery was found to reduce U5 mortality, childbearing among older women is detrimental to the child's survival (Afoakwah et al., 2018).

## 3.6 Conclusion

The empirical analysis in this chapter reveals that Malaria remains one of the major diseases that need to be eradicated to reduce child mortality significantly. Whilst significant efforts were made to reduce child mortality by 2015. Evidence suggests that the world is losing the fight against the disease globally.

A cursory look at the global malaria data from the WHO (2021) suggests that the global malaria burden stood at 241 million cases in 2020, as far back as 2000. In 2000, the global malaria deaths stood at 896,000 deaths, followed by a steady decline up to 2019 with 558,000 deaths recorded, then a further increase in 2020 to 627,000 deaths due to the COVID-19 pandemic. The WHO African Region accounts for about 95% of global malaria cases and 96% of global malaria mortality. Children U5 accounted for 77% of global malaria deaths in 2020. In Ghana, reported malaria cases among children U5 have gradually increased from 12% in 2016 to 33% in 2017, resulting in improved access to testing (WHO, 2019).

In 2020 alone, about 39,214 children U5 died from malaria in Ghana, regardless of the various interventions. The chapter also shows malaria control and prevention interventions from the

1900s. Recent policies such as NHIS and free maternal health care programme; Roll back malaria initiative (Indoor Residual Spraying (IRS), the use of Insecticide Treated Bed-Nets (ITN)); and the Anti-Malaria Drug Policy in Ghana have been implemented to eradicate malaria among children U5. The conceptual framework of the study was also highlighted, which explains that establishing a functional health system governance in Ghana requires an in-depth understanding and insight into the various institutions, policies, political-administrative structure, reliable funding, actors and environmental factors, as well as how all these instruments interact to influence health care service delivery.

# 4 THEORETICAL PERSPECTIVE

## 4.1 Introduction

This chapter reviews the literature on key concepts underpinning the study. It provides a theoretical standpoint of the study. The chapter begins with the study's theoretical framework (encapsulated in Figure 4-4: Building blocks of theoretical approaches) and, in this light, discusses three main theories: rights-based approach, policy cycle theory and political economy theory. The chapter further reviews scholarly perspectives and conceptualisations on governance and health system governance. This is followed by an overview of Ghana's health system with a specific focus on the legislative framework governing the health sector and the health system governance structure with an analysis of the various actors and institutions in the sector. The health industry financing structure in Ghana is also analysed. Finally, the chapter discusses the conceptual framework of the study.

## 4.2 Theoretical Framework

### 4.2.1 Rights-based Approach

Today, health is recognized as a human right, a key component of social justice and equality. The premise of the rights-based approach to ensuring quality, affordability, and better health is empowering poor people and vulnerable people (Charlotte McClain-Nhlapo, 2020). The rights-based approach for this research provided a strong basis in constitutional human rights law from which the populace's health would be advanced administratively and through legal recourse.

For example, the Convention on the Rights of the Child (CRC) and the Universal Declaration of Human Rights of 1948 strongly call for judicial remedies. Article 8 of the (UNDHR) states that "everyone has the right to an effective remedy by the competent national tribunals for acts violating the fundamental rights granted him by the constitution or by law". The rights-based approach enjoins the basics of political, social and economic rights needed to engender the dignity of lives (Marshall, 1963). Helpful for this research was that the rights-based approach (See: Figure 4-1) enables people to become part of the solution to ensure good health and advance socio-economic development (Charlotte McClain-Nhlapo, 2020).

The right to health is key to every human being. It does not only deal with ill-health-related biological or behaviour alone. It is also a result of power relations. Alicia (2015) argued that the human rights framework paddles health and ill health not just due to disease and behavioural facts but also to power relations that breed injustices. The underlying points of U5 death, conditions and disability lie in the inequality distribution of policy resources, which is a core responsibility of the state government or leadership. The realisation of policy is what the state does or does not do in resolving a social problem (Knoepfel et al., 2010).

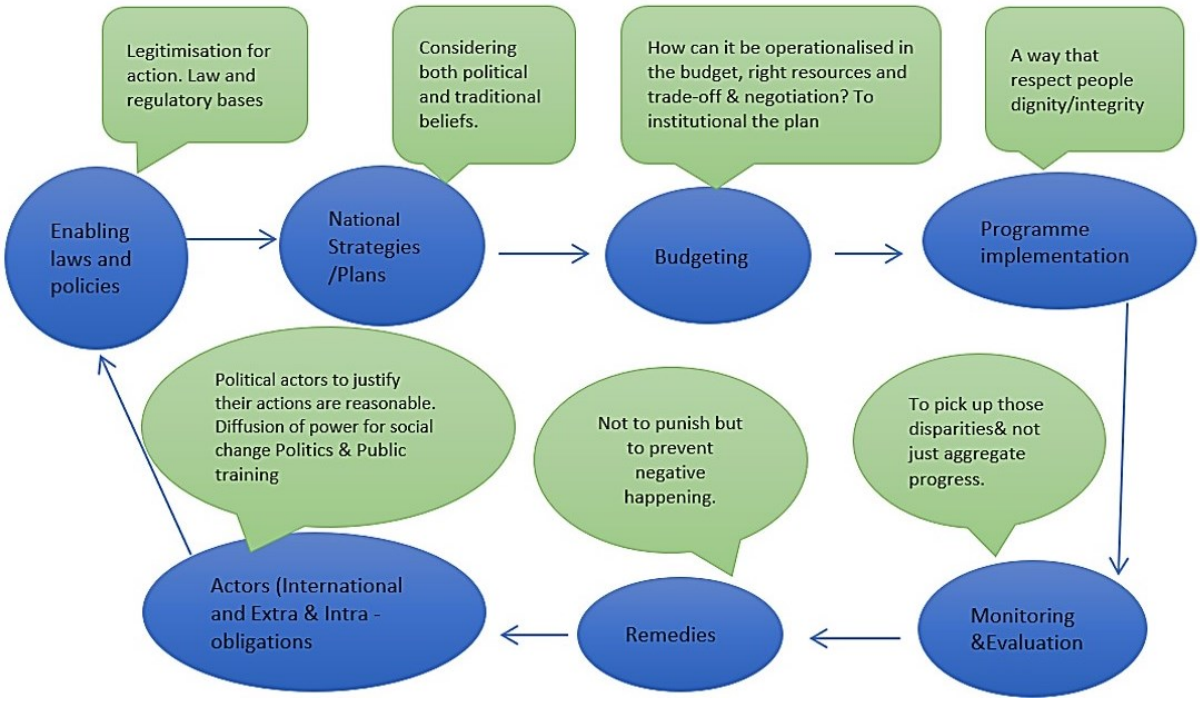


Figure 4-1: Right to health and power relation (The circle of accountability)
Source: Adopted from (Yamin & Frisancho, 2015) with some adjustments made by the researcher

The argument is that 'malaria' is an action of the State. Thus, the State is responsible for formulating and implementing the right policies consistent with international human rights conventions and committing adequate resources to ensure that the health of citizens and this U5 are safeguarded. Whilst it is the government's responsibility, it is for citizens to enjoy good health. According to the rights-based approach (See: Figure 4-2), the state or government assuming responsibility for the health of its citizens, preventing discrimination, enhancing participation, ensuring transparency and accountability, and facilitating justice and redress for victims whose right to health has been violated would improve outcomes (Gruskin et al., 2010).

In addition, the UN Committee on Economic, Social and Cultural Rights defines the right to health to entail the 3AQ: availability, accessibility, acceptability and quality of health-related goods and services.

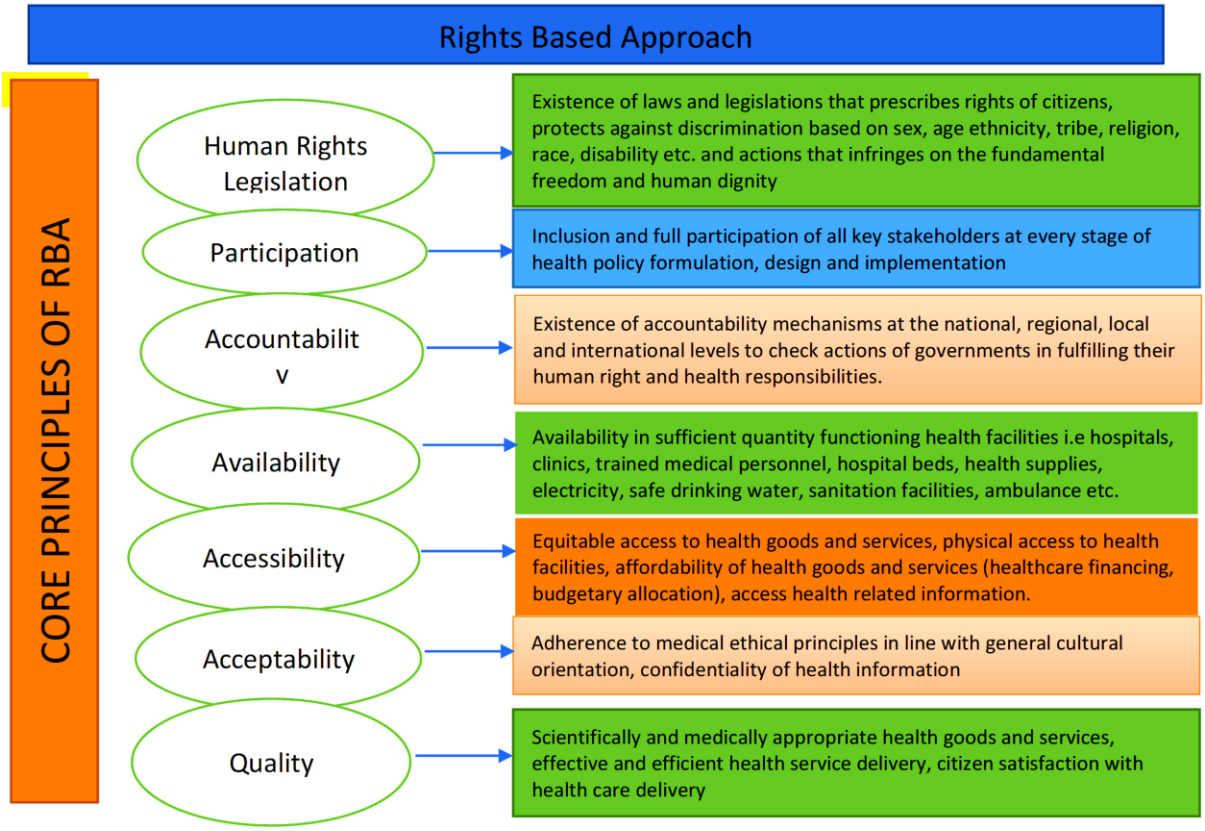


Figure 4-2: Core principles of a rights-based approach
Source: Author's construct

The rights-based approach was adopted to highlight the rights of citizens to enjoy good health conditions. The theory was applied first to provide the basis to examine the legislations and institutions set up to protect citizens against discrimination based on sex, age, ethnicity, tribe, religion, race, and disability and actions that infringe on fundamental freedom and human dignity. Secondly, the approach provided the justification to assess how the government of Ghana has been able to safeguard the right to health of U5 by formulating and implementing health policies to eradicate malaria and reduce U5 mortality. Similarly, the right-based approach enabled the study to examine the extent to which the rights of citizens to participate in health policy decisions and implementation, as well as their rights to quality health care in terms of availability, accessibility, and acceptability, have been adequately safeguarded.

Despite the usefulness of the rights-based approach, they fail to highlight the political motives and interests of actors involved in policy formulation and implementation. Ovseiko et al. (2010) indicated that to fully understand the health policy outcomes in a political and economic environment. There is the need to establish "causal mechanisms of political actions and interactions through which the policy took place as well as non-political factors that shaped the political actions and interactions".

### 4.2.2 The Policy Cycle Theory

The policy cycle theory has been one of the widely applied theories in policy studies to understand the policy process. The theory has provided the framework for analysing policy processes sequentially or stage-by-stage. The cycle describes a systematic or orderly process of how social or public problems are identified, followed by sequential activities or action plans aimed at resolving the issues, then an evaluation of these action plans in terms of effectiveness and efficiency, which is followed by termination of the policy or restart of the whole process.

The theory's genesis is traced to the works of (Harold Dwight Lasswell, 1956), who identified seven steps in policymaking: intelligence, promotion, prescription, invocation, application, termination, and appraisal. It subsequently provided the framework aiding various policy analysts in developing different policy typologies. Brewer & DeLeon (1983) introduced six stages: invention/initiation, estimation, selection, implementation, evaluation, and termination. Howlett and Ramesh (2003) identified five stages: agenda setting, policy formulation, adoption, implementation, and evaluation.

However, Dye, in his model, separates problem identification from agenda-setting and provides six stages of the policy cycle to include: problem identification, agenda-setting, policy formulation, policy legitimation, policy implementation and policy evaluation (Dye, 2017). Similarly, Knoepfel et al. (2010), as shown in Figure 3.1, identified four main stages in the policy process: the placing of the problem to be resolved on the governmental agenda (agenda setting); legislative and regulatory programming of the public intervention (programming); the implementation of the political-administrative programme (PAP) using action plan (APs) and standard outputs; and lastly the evaluation of the effects (impacts and outcomes). In recent policy literature, the stages in the policy cycle theory have been standardised into five main steps:

agenda-setting, policy formulation, decision-making, implementation, and evaluation (Knoepfel et al., 2010).

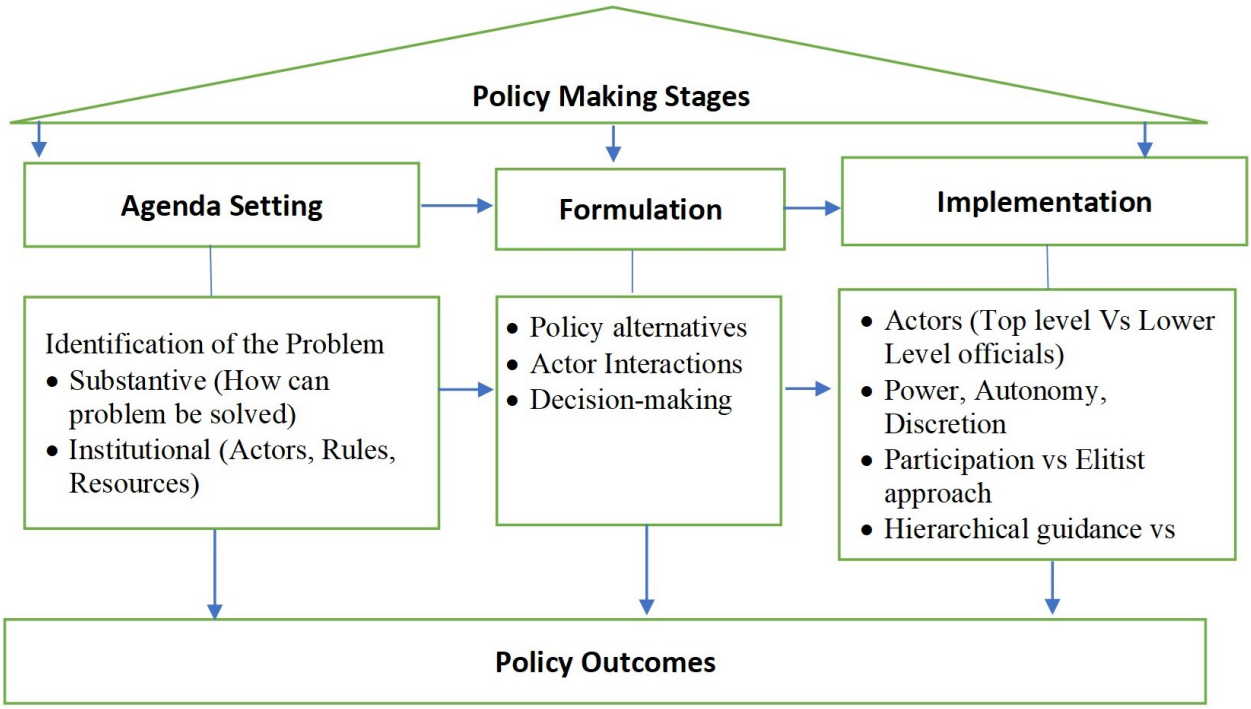


Figure 4-3: Policy cycle model
Source: Author's Construct

Despite the usefulness of the policy cycle theory in describing the policy-making process as a continuous process involving various actors, institutions and forces interacting to shape policy outcomes, the theory has been criticised as presenting an unrealistic worldview and simplified explanation of policymaking. The approach fails to highlight the interactions and linkages between the different stages, for example, how policy implementation may affect future policy agenda-setting. In addition, the theory provides a straight-jacket step in policymaking without considering the influence of the social and political environment. Emergencies may require some steps to be skipped. Notwithstanding the criticisms and weaknesses of the policy cycle theory, it has provided an excellent opportunity for theoretical propositions and empirical analyses in the policy literature. However, evidence in the literature shows that instead of relying on the whole policy cycle framework, several policy studies adopting the policy cycle theory focused on advancing specific stages of the cycle in the quest to provide more empirical analysis and

understanding of the location (Kingdon, 2011; Mazmanian & Sabatier, 1983; Van Meter & Van Horn, 1975).

In this regard, this study applied the agenda-setting and formulation stage—which, for this stage and considering the policy-making context of Ghana, put together policy implementations to analyse the health policies towards eradicating malaria among U5. The agenda-setting and formulation stage was applied to understand how U5 malaria health policies are formulated considering the influence of politics, power dynamics, and participation of all relevant stakeholders, as well as how the baseline for these policies is determined. The implementation stage is to determine how health policies to tackle malaria have been executed, including the roles played by all relevant stakeholders and the potential social, economic, and political factors constraining the successful implementation of these policies to achieve desired outcomes.

### 4.2.3 Agenda Setting and Policy Formulation

Agenda setting is the first stage in the policy cycle theory that involves a critical analytical definition of the problem to be solved and the necessary political interventions to be undertaken. It demarcates the public problem's scope and identifies the general problem's leading causes. The policy cycle model places the agenda-setting function at the bottom of political actors, hence termed the ‘political definition of the problem’ (Knoepfel et al., 2010).

A social problem may become a public problem requiring government action if only it finds its way into political actors after being subjected to political debate in the political-administrative arena. At this stage, political-administrative actors deem it critical to identify a solution for the problem. The political definition of the problem encompasses four main dimensions: the intensity of the problem, the perimeter (or audience) of the problem, the newness of the problem, and the urgency of the problem (Knoepfel et al., 2010).

The problem's intensity implies the consequences' extent at both the individual and collective levels. Political actors judge the seriousness of the situation to warrant government action to its adverse effects. Analysis of the perimeter of the problem is also critical, as it entails the extent of the damaging effects of the crisis on different social groups and their geographical location. This makes it possible to determine whether the problem is broadly shared or concentrated in a particular location or group. The realness of the problem is also critical to assess the extent of

urgency that political actors will attach to solving the problem. New issues tend to find their way easily on the government agenda, but with time, the problem may lose its situation and weight against emerging new problems (Downs, Anthony, 1972).

Two main elements need to inform agenda-setting, which are "substantive" (how can this problem be resolved?) and "institutional" (which actors, according to which rules of play and with which resources are going to contribute to the next stage of the resolution of the problem?). According to Knoepfel et al. (2010), neglecting these two dimensions may affect the successful implementation of public policies to address the general problem fully. Policy actors in and outside government aim to shape and influence the agenda. According to Kingdon (2011), define issues in the agenda-setting stage, such as defining key actors or experts, the institutional arena to debate public problems, and media coverage. The outcome of agenda-setting is choosing the most urgent general problem among the lots that need urgent action.

Next is policy formulation, which involves exploring various alternative options and strategies to resolve the problem. It also entails developing specific objectives and goals to evaluate how the issues are resolved. Policy formulation may involve public and private actors: government bureaucracies; interest group offices; legislative committee rooms, meetings of special commissions; and policy-planning organizations organisations as think tanks" (Dye, 2017)). Interactions between these actors are duly expected to occur, and there is a need to gather relevant information and engage in extensive consultations and deliberations to select the right policy strategy and action plan. However, it is essential to note that the final decision on policy action resides with top political actors and top policymakers.

### 4.2.4 Policy Implementation: Top-Down and Bottom-up Theories

The implementation stage in the policy cycle is crucial since it significantly impacts the success of public policies. The way policy is implemented. Policy implementation is where actions are directed towards achieving the objectives of policy decisions (Van Meter & Van Horn, 1975). Van Meter and Van Horn, (1975) opine that implementation begins after policy goals and decisions have been out by policy decisions and funds.

Viewing policy implementation beyond the actions of only state actors, Jann and Weinrich consider implementation to involve the "stage of execution or enforcement of a policy by the

responsible institutions and organisations that are often, but not always, part of the public sector". This conceptualization of implementation has been generally accepted by second-generation theorists who challenged the top-down perspective advanced by first-generation theorists of policy implementation (Blackman, 2004, 2004; Hill & Hupe, 2021).

Theorists of a top-down approach to implementation (Mazmanian & Sabatier, 1983; Pressman & Wildavsky, 1984; Van Meter & Van Horn, 1975) regard policy implementation as the hierarchical execution of centrally determined policy decisions. They conceive policymakers to have total control in making policy decisions and determining how those policies should be implemented. The top-down approach assumes that policy decisions determined by policymakers can be successfully carried out by establishing specific implementation mechanisms. Here, policies are made at the top-level management or central government and forced down to the people beneath or at the local level. The people at the lower level are not involved in the decision-making, though they are the beneficiaries of those decisions. The justification for this approach has been that considering the sensitive and technical nature of law or policy, top-level policymakers with the requisite skill and knowledge are rightly placed to make policy decisions and structure the implementation process by creating adequate and appropriate bureaucratic procedures that would enable policies to be accurately and effectively implemented. Such bureaucratic arrangements should ensure sufficient resources for implementing agencies, as well as specified hierarchical control and responsibilities that would direct the actions and behaviour of the implementers.

However, the top-down approach to implementation has been criticized by second-generation implementation researchers who advocated for the bottom-up approach to policy implementation. According to the theorists of the bottom-up approach (Hjern & Hull, 1982; Lipsky, 1980), policy implementation involves varying networks of actors engaged in executing policy decisions. They reject the view that policies should be centred only on top-level policymakers with the ultimate power to control implementation processes. Thus, the hierarchical guidance to implementation must lead to proper understanding and recognition of the significant role that implementing agencies and other private actors play.

The bottom-up approach suggests that implementing agencies or what Lipsky calls 'streel-level bureaucrats' wield much discretion in executing policy decisions rather than complying with

orders from above. This discretion results from these street-level bureaucrats being closer to the problem requiring action than top-level policymakers. Bottom-up theorists argue that it is not acceptable to formulate policies without the input and participation of implementers who wield significant discretion and autonomy and adequately understand the problem that requires solving. According to this school of thought, the implementation analysis should begin with identifying the factors affecting the issue and mapping the relations between them (Lipsky, 1980).

Fischer and Miller (2017) indicate that the bottom-up approach "lies on the decentralised problem-solving of local actors rather than on hierarchical guidance". Thus, whilst the top-down approach to implementation situates power and autonomy with central or top-level decision-makers in controlling policies, the bottom-up approach instead deems implementers to hold ultimate authority and discretion in determining how successful policies are implemented. Top-down theorists view policymakers as the main actors in policy implementation, while bottom-up theorists consider local or state-level bureaucrats as the main actors in implementing policies.

The top-down approach emphasizes an elitist ideology of representative democracy where elected representatives and appointed top bureaucrats are recognized as the only actors with legitimacy due to their expertise in making binding policy decisions on behalf of the whole populace. The bottom-up approach rejects this elitist ideology because it does not encourage participation by implementing agencies in policy decisions, which may lead to illegitimate policy decisions by elected representatives and policymakers. Legitimate democratic governance only encourages participation by those affected by specific policy decisions, such as lower-level administrative personnel, civil societies, interest groups, target beneficiaries, and the private sector in policy decisions. This is because these actors (lower-level bureaucrats, target groups, beneficiaries and private actors) have legitimate concerns that must be considered in policy formation.

Adopting both the top-down approach and bottom-up approaches in analysing how health policies are implemented in Ghana was very useful because it provided the framework to identify the range of actors, their roles and interactions in the policy formulation and implementation of health policies relating to malaria in Ghana, and to determine whose choices assess policy outcomes. Therefore, these theories of performance were worth exploring in Ghana's public

health system (especially concerning U5 malaria health outcome) since all stakeholders involved, one way or the other, have their centre of attraction towards solving the social problem.

The health policy environment in Ghana comprises various actors at different levels in a decentralized governance structure, which made these theories relevant to assess the interaction and extent of participation among these varying actors in the formulation and implementation of health policies such as U5 malaria health policies. This is because the democratic governance system within which the health system in Ghana operates is expected to encourage participation by state and non-state actors in policy decisions and implementation. The extent to which participation by state and non-state actors pertain in health policy formulation and execution was something this study sought to examine. Furthermore, both theories were applied to explore the power and autonomy dimensions in health policy decision-making and implementation among the various actors across Ghana's national, regional and local levels of health governance.

## 4.3 Political Economy Theory

The political economy theory highlights the importance of actors, institutions (rules of the game and policy implementers) and the resources that interact to bring policy outcomes. Using the definition by the Department for International Development (DFID), political economy analysis can be used not only to understand various actors' impact on policy but also to increase the opportunity for policy changes that give a chance for political reform, strengthen the core functions of the state and institutions and improve service delivery (this case healthcare) that build state legitimacy and respond to social problems (DFID, 2009).

The political economy theory was employed because since the study sought to investigate the U5 malaria health outcome across the different regions of Ghana, it was essential to examine the political economy tendencies that influence the development of policy implementation and, in this case, malaria health policies, at the local level considering the interests of all relevant stakeholders. Furthermore, the theory was employed to provide insight into how politics influence the formulation and implementation of health policies in Ghana amidst the competing interests of both state and non-state actors. The politicization of the health sector governance in Ghana is overwhelming. The system is such that an elected political party has the power (due to

the “winners take it all” system of governance) to influence almost everything in the country's policy process.

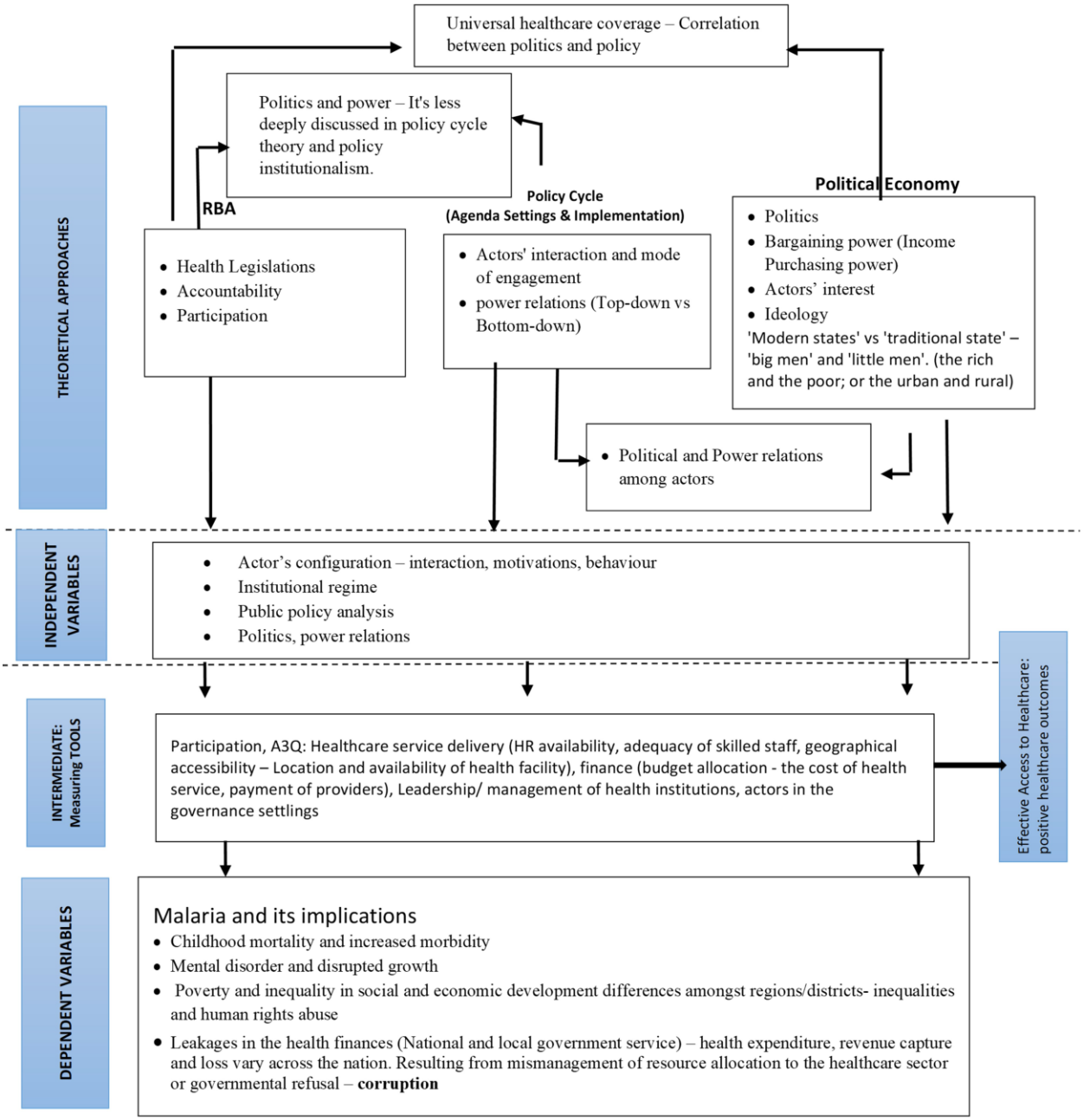


Figure 4-4: Building blocks of theoretical approaches
Source: Author’s work

As a result, policy decisions tend to be more political rather than technical choices. Political change and transition tend to curtail the continuity of public policies initiated by previous governments. The theory provided the basis to examine the choices actors (political parties,

public bureaucrats, health professionals, and other actors like regulatory bodies and pharmaceutical companies) make in the fight against the number one killer disease of U5 in Ghana. Therefore, it was essential to look beyond policy-making to reflect on actual practices, how, by whom, and why policies are potentially reshaped in the translation process.

## 4.4 Defining Governance

The term 'governance' has been used by scholars in various fields of study. As a result, it has become difficult for scholars to agree on one definition of governance. The concept is applied differently across disciplines and among international organisations. Associates of World Bank (Daniel Kaufmann et al., 2005) define governance as "the traditions and institutions by which authority in a country is exercised…which encompasses: the process by which governments are selected, monitored, and replaced; the capacity of the government to formulate and implement sound policies effectively, and; the respect of citizens and the state for the institutions that govern economic and social interactions among them". The World Bank employs six variables to evaluate governance quality across countries: Voice and Accountability; Political Stability and Absence of Violence; Government Effectiveness; Regulatory Quality; Rule of Law; and Control of Corruption.

The Organisation for Economic Co-operation and Development (OECD) also describes governance as "...the exercise of political, economic and administrative authority necessary to manage a nation's affairs" (OECD, 2006). They further describe good governance as presented by participation, the rule of law, transparency, accountability, effectiveness, and equity. In 2009, the United Nations Economic and Social Commission for Asia and the Pacific (UNESCAP) offered a simple definition of governance as "the process of decision making and the process by which decisions are implemented (or not implemented)" (Andrew Sheng, 2010).

The foregoing definitions focus mainly on the government and situate governance only in the political arena, but governance is not about governments alone. Thus, governance entails the government's actions, other actors' significant roles, and their interactions. The definitions also need to recognise the role of different actors (especially non-state) in governance. Governance is also defined as "the rules (both formal and informal) for collective action and decision making in a system with diverse players and organisations while no formal control mechanism can dictate

the relationship among those players and organisations" (Pyone et al., 2017). This definition does not situate governance only in the government or political arena, but IT can occur in other social and organisational settings. From the same perspective, governance is described as "ensuring that strategic policy frameworks exist and are combined with effective oversight, coalition building, regulation, attention to system design and accountability" (Bigdeli et al., 2020, 1).

The current conceptualisation of governance is shifting away from governance as a political or governance function. The concept of governance should be described broadly to encompass systems and institutions established to guide actions and foster interactions and collaborations among various actors in any organisation setting. This study pursues this direction and utilises the governance framework from the standpoint of health systems and institutions, as well as the consequent interaction of actors and the display of power relations.

## 4.5 Health System Governance: Definitions

Despite many works on governance, there must be more literature on health system governance. However, health system governance is gaining much attention from scholars and international organisations. The complexities, shocks and consequences of economic and political crises, natural disasters and pandemics have necessitated countries' shift to a more holistic approach to many healthcare systems (Kickbusch & Gleicher, 2013). The global prevalence of diseases such as AIDS, avian flu, SARS, and COVID-19 has pushed health issues to the top agenda of international organisations and governments. This has resulted from the dire social, political, and economic implications at the national and global levels, promoting bilateral and international cooperation to find lasting solutions to these health issues. In addition, the growing cases of corruption in public health systems have also generated many advocates and campaigns for good governance in health systems for better health delivery outcomes. For instance, the Global corruption report by Transparency International (2016) revealed the vast scale of corruption in health systems in both developed and developing countries, reinforcing the call for better health system governance.

The health system comprises "all organisations, people and actions whose primary intent is to promote, restore or maintain health. This involves all intentions and actions geared towards influencing the determinants of health and all activities that directly improve health outcomes.

Thus, health systems cannot be limited to the activities of only public health institutions that provide personal health services but also include a mother's care for the sick child at home; private health providers, health insurance institutions, behaviour change programmes, vector-control campaigns, as well as occupational health and safety legislations (World Health Organization, 2007).

The WHO conceptualises health system governance as "stewardship" and advocates for strategic policy frameworks combined with effective oversight, regulation, incentives, and accountability (World Health Organization, 2007).

From a similar perspective, Mutale et al. (2013) stressed that health system governance comprises the aggregation of normative values, including issues of equity and transparency within the political system in which a health system operates. However, recent works have sought to describe and analyse health system governance using a multi-stakeholder approach and the kind of interactions and collaborations among these stakeholders towards quality health care. Two common interlinks have been used: the whole-of-government and whole-of-society approaches.

The whole-of-government approach, called 'joined-up government', reflects a vertical diffusion of governance across different government levels and sectors. This approach is deemed helpful in resolving wicked problems within the government arena. The whole-of-government process has become essential in the formulation of health policies. It calls for a concerted effort and joint action by government actors across various levels (national, regional and local) with a common goal of improving the health and well-being of society. This approach is helpful in countries with a decentralised government system where health responsibilities are devolved to state institutions at the regional and local levels with varying forms and degrees of power and authority (Hooghe & Marks, 2020). A key strength of this approach is that it highlights the significant role played by state actors or institutions at the local level in formulating public health policies. The process, however, is criticised as requiring more time, resources, and effort in "building trust, a common ethic, a cohesive culture and new skills" (Kickbusch & Gleicher, 2013, p. 30). In addition, it requires the full support of top-level policymakers and the overall system.

On the other hand, the whole-of-society approach introduces another level of complexity in health system governance. It highlights the limitations of the whole-of-government approach in

addressing wicked problems and that such issues would require efforts and inputs by social stakeholders, especially citizens. The approach emphasises the significant roles the private sector, civil society organisations, mass media, and citizens must play in formulating health policies and preparedness for pandemics (Dubé et al., 2013). This approach calls for greater involvement, collaboration and communication between the government and the rest of society at various levels in formulating and implementing health policies. Thus, every actor has a community role in investing their resources and competence in developing strategies to curtail health problems. The responsibility to address health problems is therefore extended beyond the government.

It is evident from the above that a functioning and robust health system governance must encompass both whole-of-government and whole-of-society approaches to achieve significant gains in health care delivery. For this study, health system governance is conceptualised as an integrative and collaborative process where the government undertakes diverse roles as commander-in-chief, imposing mandatory regulations that define boundaries and rules for consumers and all stakeholders; as a provider of public goods and services; as the steward of public resources; and as a partner in collaborative undertakings with other jurisdictions, private sector, civil society organisations, and citizens in the formulation and implementation of health policies to enhance quality health delivery in an environment of equity, transparency, and accountability (Dubé et al., 2013).

### 4.5.1 Measuring Health System Governance

A review of the literature on health system governance shows that different scholars have developed several frameworks to assess the effectiveness of health system governance in different countries. About sixteen other (16) frameworks could be employed to analyse policy formulation and implementation of any national and local health system (Pyone et al., 2017). These frameworks emanate from three main disciplines: political science and, public administration, and new institutional economics (Abimbola et al., 2015, 2015; Brinkerhoff, 2004; Cleary et al., 2013). Five (5) frameworks are applied (Brinkerhoff, 2004).

Brinkerhoff (2004) advanced a ‘Principal–agent’ model of governance based on the accountability framework of the World Bank to undertake a national-level assessment of health

system governance. Brinkerhoff describes three forms of principal-agent relationships: between government (principal) and health care providers (agents); between citizens (principals), and health care providers (agents) and between government (agent) and citizens (principals). They argued that governance emanates from the engagements and interactions among the principals and agents who have divergent interests in a way that agents will only provide services to the principals so long as they are sure of some incentives. Though the agents tend to have more information than the principals, the principals put in place measures and systems to curtail the information asymmetry that will cover low transaction costs. Few studies have applied Brinkerhoff and Bossert's framework.

Mutale et al. (2013) used the framework to evaluate the health governance in a health facility in Zambia. Similarly, the framework was adopted by Cleary et) to evaluate accountability mechanisms in health systems in low- and middle-income economies. Siddiqi et al. (2009) developed the "Governance assessment framework" to measure health system governance at three levels: national, district and facility, from policy formulation to implementation in Pakistan. They revealed the importance and influence of the socio-political context of a country and discovered that health system governance principles in the country were mainly value-driven. They established that improving health system governance can be achieved without progress in a country's public governance.

The following framework applied is the "cybernetic framework" by Smith et al. (2012). They used the framework to assess the health systems at the national level in seven countries: Australia, England, Germany, the Netherlands, Norway, Sweden and Switzerland. Drawing on the systems theory, the framework describes how health systems operate. According to Smith et al. (2012), it is imperative to consider governance as "hierarchical (rules and responsibilities for allocating resources horizontally (both incentives and the market regulate purchasing power, and systems produce common values and knowledge through professional norms)". The framework also emphasises how a system utilises information and regulates itself through feedback. The framework identifies three main principles: setting priorities, accountability (inputs into the health system) and performance monitoring (output). Smith et al. established that successful health system governance depends on the competencies and capacities of all critical actors at different levels.

The “multi-level framework” by Abimbola et al. (2015) is the last, but not the minor one applied in the literature. The framework was used to evaluate the health system governance at three levels—collective (community groups), operational (citizens and health care providers) and constitutional authority (different levels of government). The framework highlights the interactions that occur at the various levels of government. It also describes the significant roles that non-government actors can play in governance and the institutions and rules developed among groups with the same interests.

This framework was applied to investigate decentralisation’s effect on Nigeria's retention of primary health care. Applying the framework helped identify primary health care healthcare incentives, motivation, and the reasons for their willingness to stay at the post despite their socio-economic hardship. The different levels of governance: constitutional (federal government), collective (communities), and functional (healthcare providers at local health care institutions) were evaluated using the framework (Abimbola et al., 2015).

The preceding review signifies that no agreed-upon framework exists to evaluate health system governance. However, one obvious thing is that health system governance cuts across disciplines and is multi-dimensional. It is also clear that it does not involve one single entity but encompasses the interactions between various government and non-governmental actors. In addition, due to the differences in context, it is essential to note that whilst some frameworks may be applicable in one setting, they may not be appropriate in another. An in-depth understanding and analysis of the context are imperative before any framework can be applied to evaluate health system governance.

## 4.6 Health Policy in Ghana: Agenda Setting, Policy Formulation and Implementation of Malaria Child Health Policies in Ghana

Policymaking in Ghana’s health sector follows the policy cycle stages of agenda-setting, formulation, implementation, and evaluation. However, these stages do not always follow linearly but tend to overlap. This section discusses agenda setting, policy formulation and implementation of malaria child health policies in Ghana.

### 4.6.1 Agenda Setting and Policy Formulation: Policy Actors Dynamics

Agenda setting and policy formulation in the health sector are influenced primarily by political interests, international or global agendas, health indicators based on scientific evidence, activities and influence of CSOs, NGOs and interest groups, and, in limited cases, media and public opinion.

Although technically, the health sector is not immune to the direct influence of political interests. Political party manifestoes have significantly influenced health policy agenda-setting and formulation. Since Ghana was ushered into constitutional rule in 1992, it necessitated competitive political party elections, health issues, and other social issues have become highly politicized and important electoral themes that differentiate one party from the other (Lenhardt et al., 2015). The need to consolidate political power and make political gains has led to the introduction of overly ambitious policies and the cessation of predecessors' policies. The NHIS is a typical policy bearing the brunt of political gimmicks, which have primarily affected its successful implementation. The ultimate powers given to the President by the constitution to appoint the Minister of Health and other top technical officials in health implementation agencies demonstrate the enormous political influence in the sector (Ninsin, 2008). The appointment of top health officials has become highly politicized. It is reported that between 2009 and 2015, Ghana had seven different ministers of health. Ministers and top health officials are expected to formulate policies that are in line with the ruling party's agenda and capable of attracting political votes. These political dynamics determine what issues or public problems get on the policy agenda list and the formulation of the necessary action plans to resolve these problems. The need to eradicate malaria among the Ghanaian populace, especially children, has remained on the government's political agenda for years, considering the potential to enhance political gains.

International or global agencies also contribute significantly to agenda-setting and policy formulation in the health sector. Ghana is a signatory to various global conventions and guidelines that demand the formulation of specific policies based on these guidelines. As a member of international organisations such as WHO, UNICEF, UN, World Bank, and the AU, international resolutions and agreements obligate the country to formulate specific policies to tackle various health issues such as child and maternal health care. The MDG 4, for instance, sought to reduce U5 mortality by two-thirds by 2015 and mandated the introduction of specific

national policies on malaria and other communicable and non-communicable diseases to achieve the target. Initiatives such as the Rollback Malaria (RBM) (2000-2015) by WHO, UNICEF, and United Nations Development Programme (UNDP), and recommendations of the use of ACTs for treatment of malaria by the World Bank largely influenced U5 child health policies in Ghana. Subsequently, the commitment of financial resources by these international and development partners to support various health policies and interventions provides leverage for direct influence in policy agenda setting and formulation in the form of advisory services and technical assistance.

Health indicators based on scientific evidence and data sometimes influence policy agenda-setting and formulation in Ghana. Specialized agencies in the health sector, such as GHS through the District Health Information Management System (DHIMS), collect and collate empirical data on various health issues and health services across public, private and quasi-government health facilities. Statistical reports are generated from these data to provide evidence on the state of health care and health issues to inform health policy agenda setting, formulation and implementation. The GHS oversight role over the DHIMS makes the institution influential in agenda-setting and policy formulation. However, the influence of politics in the sector tends to raise credibility and reliability issues of data and reports by the DHIMS and GHS to make the government in power look good. Otherwise, sabotage the policies introduced by the previous government. Coupled with this are the poor and insufficient reporting systems at many district-level health facilities, which generate concerns about the accuracy of data and reports by the DHIMS. Health data and information on Ghana from independent and international institutions such as WHO, UNICEF, and the World Bank are highly esteemed to be credible, reliable and accurate. They are mostly preferred to inform policy agenda setting and formulation on child health and other health issues.

The growth and prevalence of CSOs activities in the country have given these bodies some influence in agenda-setting and policy formulation. Several CSOs and NGOs abound with specific interests in health decision-making. Health worker associations have also become vocal and instrumental in agenda-setting and policy formulation to satisfy their grievances and interests. However, the extent to which CSOs, NGOs and union associations such as Medical and Dental, Nurses and Midwives, and Pharmacy Councils can influence policy decisions depends

largely on the technical and financial power they wield in the sector and the relationship with political elites. For instance, over the years, pharmaceutical associations have significantly influenced agenda-setting and policy formulation concerning child health policies on malaria. However, evidence suggests a decreased engagement with NGOs and CSOs in health policy decisions (Julius Gatune et al., 2021).

Even though there are limited occurrences, public opinion and media- electronic and social media- are critical influences in agenda-setting and policy formulation in Ghana. The increasing growth of activities in the media landscape, especially on social media platforms, has recently contributed to bringing issues to the policy agenda and influencing policy formulation. Narrations of personal experiences with health providers and health services across electronic and social media platforms have become increasingly prevalent, questioning the performance of the health authorities and government and necessitating government interventions. A typical case in point has been the 'No-bed-syndrome' mantra, which swept across the country and occasioned by the death of a 70-year-old man who met his untimely death because of the unavailability of a bed to admit in a major public health facility in Accra. This necessitated mass public opinion demanding a change in the health system, which eventually led to a policy directive of hospitals not to reject emergency cases and igniting a deliberate action to expand emergency facilities in the Korle Bu Teaching Hospital (Ghana Broadcasting Corporation, 2018). However, the influence of public opinion and media in policy agenda setting and formulation has been minimal due to the country's elitist approach to healthcare policy making, curtailing citizen participation in policy decisions.

### 4.6.2 Overview of Ghana's Health Sector: Historicity of Policy Developments

This section takes a holistic look at Ghana's health sector. It highlights the structure and institutional arrangements and the interplay between policymakers and the various actors involved in formulating and implementing health policies in the country. The section also provides a historical perspective on the other policy developments to promote positive child health outcomes, including specific policies geared towards managing, controlling, and eradicating malaria in Ghana.

### 4.6.3 Legislative Framework Governing Health Sector

In Ghana, several parliamentary legislations govern the health sector. Though some of these legislations existed before independence, adopting a constitutional system of government in 1992 led to the promulgation of the 1992 Constitution of Ghana, and current health trends have led to the amendments of some of these laws. Article 36(10) of the Constitution provides that "the state shall safeguard the health, safety and welfare of all persons in employment, and shall establish the basis for the full deployment of the creative potential of all Ghanaians" (Republic of Ghana, 1992, Article 36/10). As such, it is the fundamental right of every citizen to enjoy quality health care, and the government is accountable to the citizens in that regard. Aside from the constitution, other Acts of Parliament govern the health sector. Key Acts include the Ghana Health Service and Teaching Hospitals Act - 1996 (Act 525); National Health Insurance Act 2012 (Act 852), Public Health Act 2012 (Act 851); and Local Government Act 2016 (Act 936).

The Ghana Health Service and Teaching Hospitals Act 1996 (Act 525) establishes the Ghana Health Service. It mandates the Ghana Health Service with three main objectives: implement approved national policies for health delivery in the country, increase access to improved health services, and manage resources available for the prudent provision of health services. Key functions of the Service as stipulated in the Act are to ensure access to health services at the community, sub-district, district and regional levels by providing health services or contracting out service provision to other recognised health care providers; set technical guidelines to achieve policy standards set by the Ministry of Health; manage and administer health institutions within the Service; develop mechanisms for the equitable distribution of health facilities in rural and urban districts; establish effective mechanisms for disease surveillance, disease prevention and control; promote health and mode of healthy living and good health habits by people. The introduction of the Act marked a clear statement of intent to delineate public sector service delivery and the policy and regulatory functions of the MoH. Until GHS, the MoH developed its policies, implemented and regulated them, evaluated its performance, and developed the human resources needed to run the health service. This was deemed inefficient, and as part of the overall institutional reforms, there was a decision to decentralize roles and responsibilities to different agencies. The act also paved the way for the strengthening of the regulatory bodies, especially the Food and Drugs Authority (FDA), the Nurses and Midwives Council (NMC), the Medical

and Dental Council (MDC), the Traditional Medicine Board (TMB), the Funeral Homes Board (FMB), and the Private and Maternity Homes Board (PMB). Under Act 525, the MoH was the backbone for providing the Minister's general government policy direction, resource mobilization, monitoring and evaluation, and administrative support. In establishing the GHS, the MoH recognizes the country's pluralistic nature of health service provision.

The National Health Insurance Act 2003 Act 650, amended in 2012 Act 852, was promulgated mainly to enhance equity in access to health care by reducing financial barriers to healthcare. The Act establishes the National Health Insurance Authority (NHIA) to implement a National Health Insurance Scheme through a National Health Insurance Fund to pay for health care services to members of the Scheme, establish private health insurance schemes, and provide for related matters. The main objectives of the NHIA, as mandated by the Act, are “to attain universal health insurance coverage to a person resident in the country, and persons not resident in the country but who are on a visit to this country as well as to provide access to healthcare services to the persons covered by the Scheme.

In 2012, the Public Health Act 851 was established to consolidate disease prevention and health promotion laws and safeguard, maintain, and protect the health of humans and other related matters. The Act provides provisions on issues such as communicable diseases, vaccinations, quarantine, vector control, environmental sanitation, tobacco control measures, food and drugs, clinical trials, and other related issues. For instance, the Act provides that “a public vaccinator shall vaccinate, free of charge, persons who present themselves or are presented for the purpose, or persons who are or become liable to be vaccinated. The Act also mandates district assemblies to establish vector control teams to eliminate or destroy conditions and activities that encourage the development of vectors such as mosquitoes. The Public Health Act also establishes the Food and Drugs Authority, whose main objective is “to provide and enforce standards for the sale of food, herbal medicinal products, cosmetics, drugs, medical devices and household chemical substances”.

### 4.6.4 Decentralisation and Ghana's Health System Governance: Policy Actors and Political-Administrative Structure

Since the early 1980s, decentralization has been championed as one of the crucial components of democracy needed to enhance the efficiency and effectiveness of public administrative systems and improve local participation in governance. International agencies such as the World Bank, IMF and other development partners were major advocates for developing countries to adopt a decentralized system of government as a panacea to rural economic and infrastructural development, citizen participation and good governance (World Bank, 2008; Debrah & Owusu-Mensah, 2022). Adopting decentralization became a conditionality and a pre-requisite for developing countries to access aid and financial assistance from these international financial institutions. Over the past two decades, decentralization has gained prominence in the governance space of many developing countries, with various legislative and institutional structures developed to decentralize government activities.

Different scholars have defined Decentralisation as a concept in various ways due to the various forms it can take in other contexts. Early scholars, such as Rondinelli, Nellis and Cheema (1983, p.13) defined decentralisation as "the transfer of responsibility for planning, management and resource raising and allocation from the central government and its agencies to: (a) field units of central government ministries or agencies, (b) subordinate units or levels of government, (c) semiautonomous public authorities or corporations, (d) areawide, regional or functional authorities, or (e) nongovernmental private or voluntary organization". In political science discourse, decentralization is seen as "the process whereby the central government officially cedes power to actors and institutions below at the regional, district and local levels (Mawhood, 1993; Manor, 2011; Debrah & Owusu-Ansah, 2022). In the public administration space, decentralization is defined as transferring the authority to plan, make decisions and manage public functions and processes from the central government level to institutions, agencies and individuals at the lower level of government (Cheema & Rondinelli, 2007).

Due to the complex nature of decentralization, three different typologies have been espoused in literature— administrative decentralization (which comprises deconcentration and delegation) and devolution.

Administrative decentralization transfers responsibilities and financial resources in public functions and services from central government to sub-national level institutions (Cheema & Rondinelli, 2007). Two forms of administrative decentralization can be identified: deconcentration and delegation. Deconcentration, mainly deemed the weakest form of decentralization, is where some responsibilities for undertaking certain services are transferred from ministries and agencies at the central level to their local level representatives without any transfer of authority. Delegation, on the other hand, is where responsibilities for some public functions and services are shifted from central government institutions to regional and local level institutions with some level of autonomy or discretionary use of power in undertaking those functions but subject to accountability (Debrah & Owusu-Mensah, 2022).

Devolution, also called political decentralization, is where the central government transfers power and authority for decision-making, management, and financial allocations to local government institutions accountable to people in their jurisdiction. Here, local-level institutions are independent and have both financial autonomy (power to raise their revenue and take expenditure and investment decisions) and administrative autonomy (autonomy to recruit, pay and dismiss their administrative staff; and provide public services) (Cheema & Rondinelli, 2007; Obosi, 2019). Under devolution, local government institutions have a legal status that differentiates them from the central government and clearly laid-out geographical boundaries that are legally recognized within which they exercise their power and authority in providing legally mandated functions.

In the health sector, a decentralized health system has been touted as critical to improving healthcare delivery, especially at the local level. International agencies such as WHO and UNICEF have advocated for developing countries to establish a decentralized health system in their primary health care approaches. The significance of a decentralized health system is that it improves decision-making of lower-level government units of health service delivery and ensures the constant participation of all stakeholders at the local level, including the private sector (Lama-Rewal, 2011).

The argument has been that a decentralized health system creates local decision space, which is essential for achieving desirable health outcomes (Bossert & Beauvais, 2002). Decision space determines the freedom or autonomy that local-level government units have in making some

decisions and performing certain responsibilities (Sreeramareddy & Sathyanarayana, 2013). However, the width and depth of the decision space in a decentralized health system determines the extent to which efficient, equitable and quality health service can be delivered (Bossert & Beauvais, 2002; Obosi, 2019). The nature of the decision space hinges on decentralization, whether deconcentration, delegation or devolution. Previous studies have shown that the decentralization of health systems varies across countries and is highly influenced by the history, political, public administration, and the health system structure of the country (Bossert & Beauvais, 2002; Sreeramareddy & Sathyanarayana, 2013; Obosi, 2019). The key feature is that decentralized health system is structured in line with the existing local government system.

Other African countries such as Nigeria, Uganda, Togo, and Ghana have been implementing decentralization for over two decades, intending to stimulate local economic development by providing social amenities and infrastructure and improving local participation in governance (Ahwoi, 2010). Ghana operates a unitary democratic government system characterised by the three main organs of government: the executive, legislature (Parliament) and Judiciary. With a clear separation of powers across each level, a decentralised local government system has been established to enhance local participation, transparency and accountability to foster development and bring government closer to the people.

The coming into force of the 1992 Constitution of Ghana introduced a model of decentralisation in Ghana. Article 240 of the Constitution stipulates that "local government and administration should, as far as practicable, be decentralized", to ensure "functions, powers, responsibilities and resources are at all times transferred from the Central Government to local government units in a coordinated manner". This structures the government across three levels: the central, regional, and district levels. This structure provides the framework for the political-administrative arrangements in the country.

The Local Government Act 1993 Act 462, amended in 2016 (Act 936) allows the transfer of functions and responsibilities from the central government to the local level. It grants deliberative, executive and legislative processes to the metropolitan, municipal, and district assemblies (MMDAs), which act as the highest political and administrative body at the local level. The district assemblies are also subdivided into zonal, urban, town councils and unit committees at the lowest level. The MMDAs are headed by a Chief Executive, appointed by the

President and, therefore, act as the government's representative at the local level. The Act mandates the MMDAs to oversee the district's overall economic, social, environmental, and infrastructural development. As such, the Assemblies have a significant role in developing plans and strategies to promote and improve district health outcomes.

The Local Government Act 1993 Act 462, amended in 2016 (Act 936), provides insight into the governance structure of Ghana's health system. The health sector is, therefore, structured in line with the local government structure, with specific health institutions at each level performing varying roles and functions regarding healthcare delivery (see figure 4-5 below). At the central level is the Ministry of Health and Ghana Health Service. At the regional level are the regional health directorates, and at the district level are the district health directorates, which have sub-district structures, sub-district health management committees and community health committees. All these institutions are expected to coordinate and collaborate, forming a network through which health policies are formulated and implemented toward quality health service delivery.

#### 4.6.4.1 Ministry of Health

At the central level, the Ministry of Health (MoH) acts as the overarching body regarding health policy making. The ministry regulates the whole health sector through various policies. It thus provides the policy direction for the key actors in the health sector. The major function of the MoH entails "policy formulation, coordination and regulation of all the stakeholders in the health sector" (Abor et al., 2008). The ministry is expected to consult and collaborate with various significant actors such as other ministries, departments and agencies (MDAs), and other partners such as bilateral and multilateral organisations, civil society organisations (CSOs, Non-Governmental Organisations (NGOs), and private organisations in policy agenda setting and formulation. Over the years, the MoH, through political and international influence, has initiated and supervised the formulation of several child health policies toward eradicating malaria. The Ministry has complete control over the allocation of budgetary resources in the sector. This allows the MoH to exercise total control and influence over the activities of GHS and regional and district-level health directorates and institutions.

#### 4.6.4.2 Ghana Health Service

The Ghana Health Service (GHS) also plays a crucial role in the health sector. It is responsible for implementing government health policies and regulating public health institutions such as hospitals, polyclinics, and health centres. The GHS is also obligated to provide direction and implement primary and secondary healthcare services, which it does in collaboration with all health service providers, such as teaching hospitals, faith-based health institutions, private healthcare providers, and traditional and alternative service providers. The GHS has a secretariat that is decentralised to the regional (regional health directorates) and local or district levels (district health directorates), with management teams and officials that implement and administer the affairs of the service at the various levels.

The arrangement is such that the district health directorates report to the service's regional health directorates, which also report to the GHS headquarters at the national level regarding health policy delivery. These directorates are to engage with all key actors and stakeholders at each level through various meetings and summits to ensure the effective implementation of health policies. Regional and district-level health committees comprise local government institutions (MMDAs), religious bodies, traditional authorities, communities, NGOs, and CSOs. Sub-district and community-level committees also engage with community members and other relevant stakeholders, ensuring that health policies and directives are fully enforced and implemented at the community levels. These teams are to work hand in hand with community health workers, community volunteers, and other actors, such as chemical shop owners, clinics, and traditional health providers, to foster quality health care delivery. Health facilities also follow the same structure: regional hospitals, district hospitals, health centres, and clinics at the sub-district level as well as community-based health planning service (CHPS) centres at the community level. However, such collaboration in policy agenda setting, formulation and implementation rarely occurs between district-level directorates and non-state actors such as chiefs, religious bodies and other local stakeholders (Susan et al., 2021). District directorates lack the discretion to take local policy decisions without seeking approval from regional and national health directorates. As a result, the decentralised health governance structure has been deemed weak due to the centralised nature of policymaking at the national level (WHO, 2017). The governance system

has been criticised for not clarifying roles and responsibilities among key health agencies (Vecchione & Parkhurst, 2016; Fusheini, 2016).

#### 4.6.4.3 Private Health Care Providers

The private sector is also a critical part of policy realisation in Ghana. According to Abekah-Nkrumah (2006), the sector contributes to about 40% of the total healthcare delivery in the country. The key service providers in the private sector are the mission-based providers: Christian and Muslim hospitals, private medical and dental practitioners, pharmaceutical organisations, and traditional and alternative medicine practitioners. One success story of collaboration and a public-private partnership between the MoH and the private sector is the arrangement between the ministry and the Christian Health Association of Ghana (CHAG), where the church directly funds activities of the association since facilities under CHAG acts as an extension of GHS in some rural regions. This is because there are some areas where the only hospital available, a faith-based hospital, plays the role of a public hospital. However, the arrangement between GHS and CHAG tends to breed tensions and rivalry due to the overlapping functions between the two institutions. CHAG is usually regarded as an institution below the GHS, which is not the case as some would argue, that they perform the same roles as technical implementing agencies and should, therefore, be accorded the same level of influence in policy formulation and implementation (Gatune et al., 2021).

#### 4.6.4.4 Development Partners, Interest Groups/CSOs and NGOs

Development partners such as the World Bank, IMF, UNICEF, USAID, Global Fund, WHO, and DFID have played a significant role in Ghana's health sector. These development partners have invested significantly in healthcare development, financing several health programmes, including U5 malaria programmes and policies. The country has been estimated to have benefited from over $408 million in donor support in eradicating malaria since 2003 (Shretta et al., 2020). The United States President's Malaria Initiative (PMI), led by USAID, has provided financial and technical assistance since its launch in 2007 to aid the government of Ghana in developing interventions and policies to eradicate malaria.

USAID (2022) states that the PMI alone has invested about $361,027,000 to support various interventions such as ITNs, IRS, and rapid diagnostics tests. However, these financial

investments have influenced policy agenda-setting, formulation, and implementation (Koduah et al., 2015). Development partners have been criticised for pushing programmes that align with their agenda and do not reflect the local agenda (Gatune et al., 2021).

Interest groups, CSOs and NGOs, both local and foreign, also contribute to healthcare development in the country. Through advocacy, education and health programmes, these organisations play active roles in the fight against various childhood diseases and health issues. Child Rights International plays an advocacy role in ensuring that children's rights are safeguarded and that the necessary interventions are developed to promote children's health in the country. Pharmaceutical associations also play a vital role in agenda-setting and policy formulation concerning child health policies on malaria.

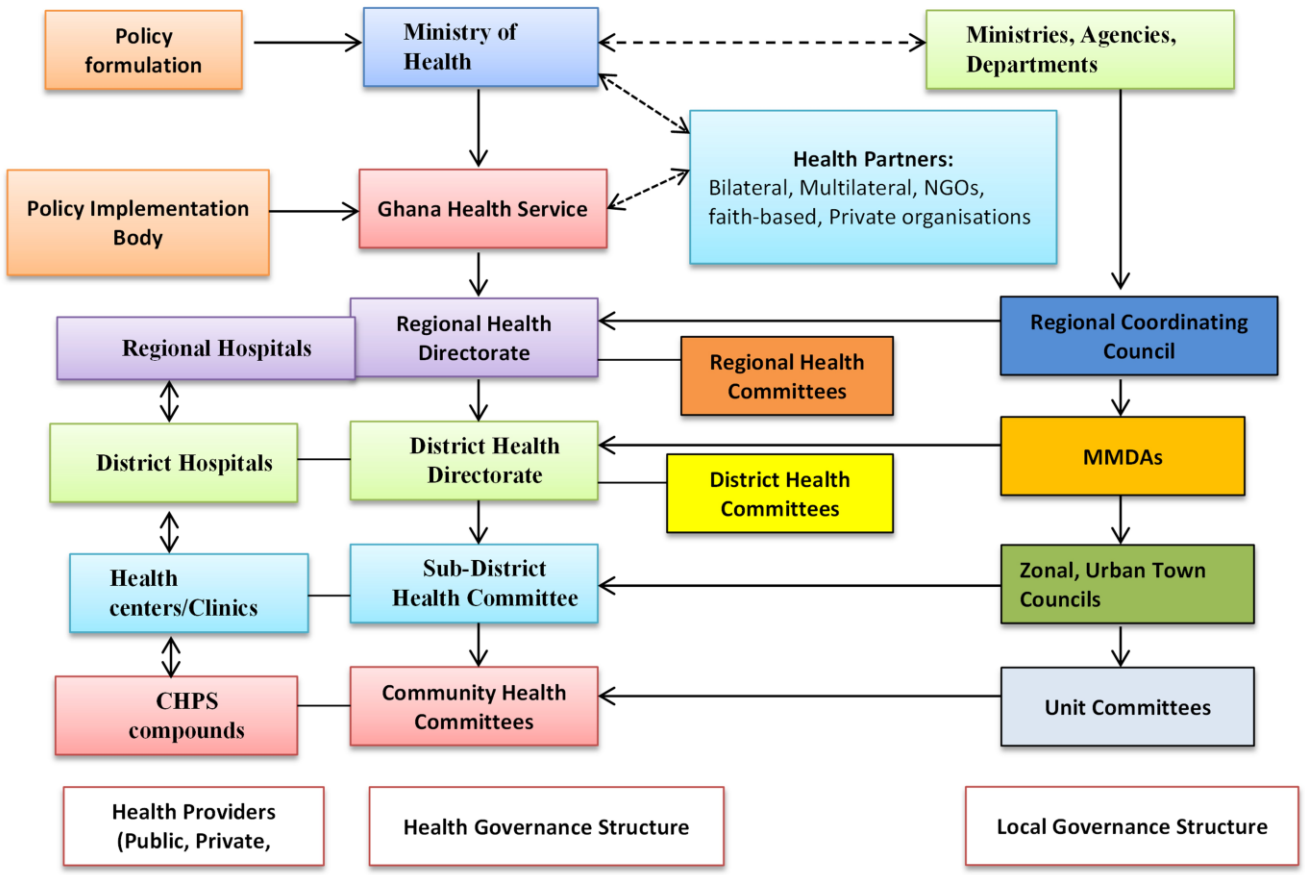


Figure 4-5: Health governance and leadership structure in Ghana
Source: Adapted from WHO (2017) and Couttolenc, (2012)

### 4.6.5 Healthcare Financing in Ghana

A common goal among countries worldwide is to achieve universal health coverage, ensuring everyone gets access to quality health care without financial hardship. As a result, having an equitable, sustainable, robust health financing system has become imperative. According to the WHO (2005), health financing implies the "function of a health system concerned with the mobilization, accumulation and allocation of money to cover the health needs of the people, individually and collectively, in the health system". It entails mobilizing, allocating and distributing resources at all levels to support basic health programmes and create access to essential health services. The WHO encourages countries to adopt various health financing methods, such as public funding through revenue collection, risk pooling, and purchasing interventions. This section examines healthcare financing in Ghana by looking at a historical review of health financing reforms and current trends.

Since Ghana gained independence in 1957, various public policies and reforms have been formulated and implemented, with health policies and reforms no exception. Following independence, the first president, Dr Kwame Nkrumah, focused on establishing an effective healthcare delivery system and various health facilities nationwide. The creation of these facilities increased access to basic health services. In addition, one major health policy during the period was the 'free health care for all', which ensured that people received health care services without paying for them. However, the policy was only restricted to public health facilities. Incessant military takeovers in the 1960s slowed down the country's health development. The free healthcare system was abolished by successive governments and replaced by the user-fee policy in 1969 under the Hospital Fees Decree, which was later amended to the Hospital Fees Act in 1971 to generate revenue for the government to fund health activities. The user-fee policy ensured that people pay for the cost of certain health services, such as registration and drugs at health facilities. The policy was abhorred mainly by many Ghanaians who deemed it unfriendly and did not promote equity in health care services, especially among the poor and vulnerable.

In the 1970s, the government collaborated with religious mission hospitals to provide health services to people in rural areas through mobile clinics and training village health workers to provide primary care for those in these areas. The Cash and Carry System (CCS) replaced the user-fee system in 1985. The CCS was introduced as a direct response to the World Bank's

directive and conditionality for support when the government sought economic assistance during the economic crisis in the 1980s. The CCS ensured people paid cash before receiving public and private health care. The policy further compounded the inequality problem in access to health care between the rural and urban citizens, the poor and the rich, and workers and the unemployed. As a result, there was a sharp decline in the patronage of healthcare services, with many people turning their attention to traditional healthcare providers, which were less expensive (Biritwum et al., 2001). This development led private entities to establish various community-based insurance schemes.

Recognising the undue inequity in the access to health services in the country, the government promulgated the National Health Insurance Law, 2003 (Act 650) and the National Health Insurance Regulations, 2004 (L.I. 1809), which led to the implementation of the National Health Insurance Scheme (NHIS). This saw the establishment of the National Health Insurance Authority (NHIA), which is the body that manages and administers the scheme. The NHIS made free health care available to all, particularly to the poor and disadvantaged. Individuals are only expected to pay a token for registration and renewal of their membership and enjoy free health care at the government's expense. NHIS is financed from four main sources: value-added tax (2.5%) on goods and services, a reserved portion of social security taxes (23%) from formal sector workers, individual premiums (5%), and miscellaneous other funds (2%) from investment returns, Parliament, and donors.

Data from the NHIA (2011) show that since the implementation of the scheme, the cost of healthcare has become very affordable to the poor and marginalized, especially those in rural areas, and there has been a surge in the outpatient utilization of healthcare services over forty-fold from 0.6 million to 25,5 million between 2005 and 2011; whilst inpatient utilization has increased over fifty times from 28,906 to 1,451,596 in 2011. Members of the NHIS are entitled to a benefits package that covers about 95% of diseases in Ghana with services deemed costly, such as heart and brain surgeries, HIV antiretroviral medicines, dialysis, organ transplants, orthopaedics and cancer treatments (Asante & Aikins, 2007; Witter & Garshong, 2009).

Patients who are insured, therefore, do not pay any fee at NHIA-accredited public, private, and mission health facilities, including hospitals, clinics, and pharmacies. Enrolled members of the scheme are expected to renew their membership annually at the NHIS district offices. Since its

implementation, the scheme has been ridiculed with challenges ranging from poor quality of services to patients complaining about long wait times, drug shortages, and poor staff attitude (Dalinjong & Daar, 2012).

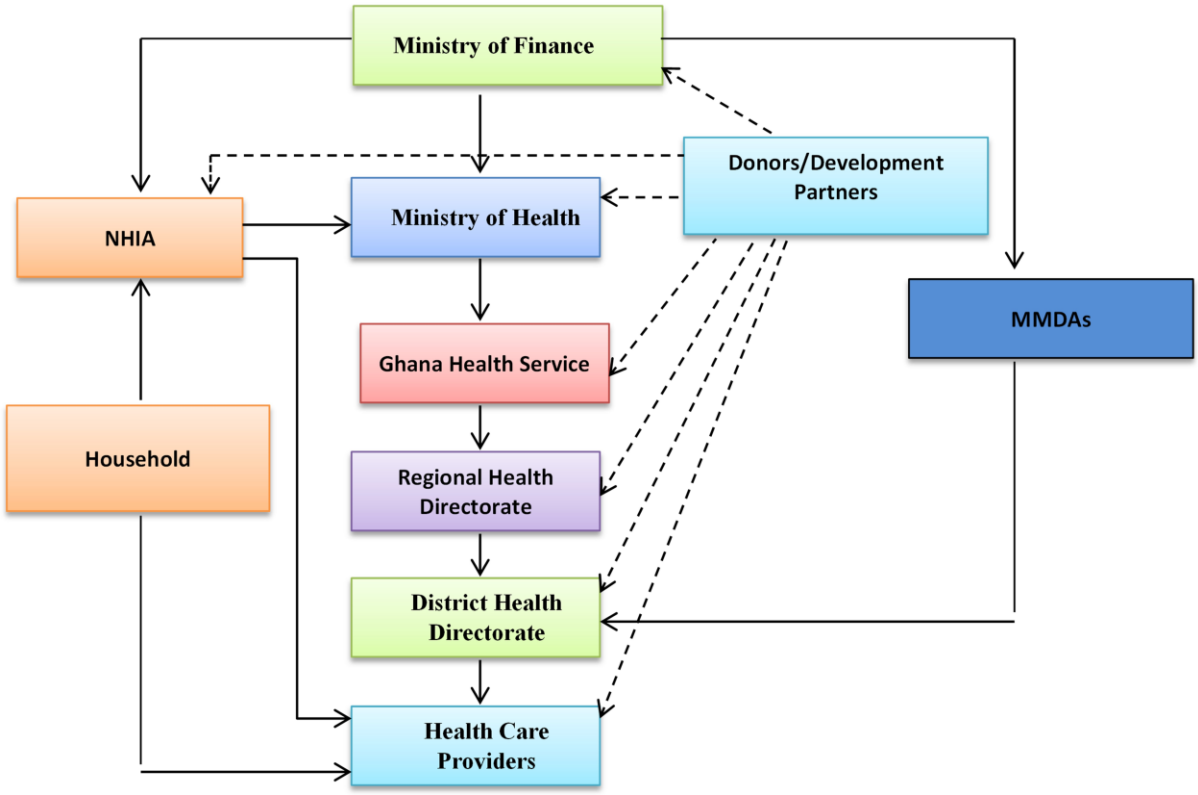


Figure 4-6: Health financing structure
Source: Adapted from WHO, 2017

Fraud has also been raised where accredited providers engage in upward billing by coding mild diagnoses as complicated to receive higher reimbursements, and others also engage in 'double billing'. The provider charges patients and the NHIS to obtain more revenue (Witter & Garshong, 2009; Witter et al., 2013).

#### 4.6.5.1 Financial Flow of the NHIS

Health financing in Ghana today is characterised by different revenue sources. Through the Ministry of Finance, the government allocates approved budget appropriations to the Ministry of Health and the NHIA into the National Health Insurance Fund (NHIF) from revenues generated from taxes and the National Health Insurance Levy (NHIL). Premium payments by the populace go to the NHIA. Development partners or donors also provide direct funding to the MoH, GHS

(including regional and district directorates), NHIA and healthcare providers to support various health programmes such as the Global Fund for Malaria and AIDS. Funds are transferred from the NHIA to various healthcare providers to pay their claims upon request. Healthcare providers are also funded by user fees or out-of-pocket household payments at the point of care. Budgetary allocations to the MMDAs also support and fund activities of the district health directorates.

Operationally, financing flows into the NHIF, which has six main sources, where the funds accumulated to realise the NHIS policy. Act 650 and Act 852 of the NHIF, defined by the parliament of Ghana, ensure the following categories for mobilising the funds. 2.5 % National Health Insurance Levy (NHIL) added on value-added tax (VAT) of selected goods and services. A 2.5 % social security and Pension Scheme Fund deduction from the formal sector workers managed by Social Security and National Insurance Trust (SSNIT) through grants, donations, gifts and other voluntary contributions from individuals, NGOs, multinational corporations, and international organisations.

The government of Ghana's (GOG) annual budget allocation is approved by parliament. Money accumulated on the investment made by the surplus fund of NHIF. Premium/contribution fee paid by the informal sector to the NHIA. The parliament may also, from time to time, allocate money to the NHIS. Effective under-five health care and development depend on finances invested in health infrastructure and services. From 2005, the proposition of GDP devoted to health was 6.4.. Out of this percentage, an estimate of 50% comes from the annual budgetary allocation from the government, with the rest coming from donors. The percentage of Ghana's GDP allocated to health is insufficient compared to the 15% GDP that the Abuja declaration established.

The onset of the 21st century also saw a conscious effort by the government to provide financial resources to boost healthcare delivery to the people of Ghana – primarily mothers and their babies. The government has introduced several health policies, with maternal and child health financing as the bedrock (Aikins & Koram, 2017).

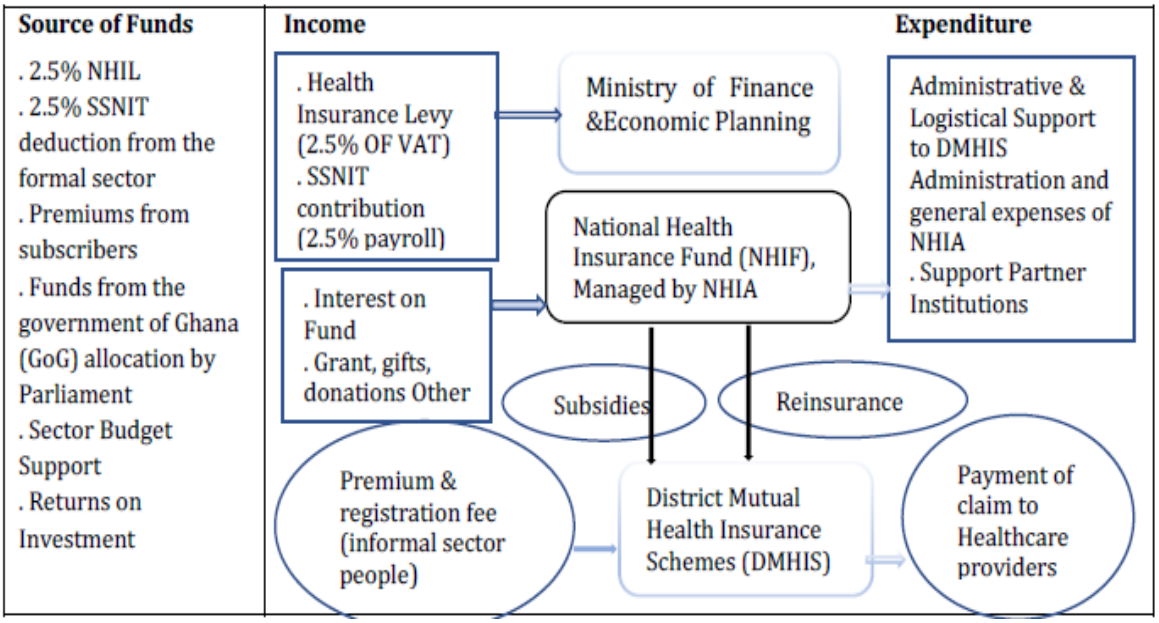

Figure 4-7: Financial Flow of the NHIS
Source: Adapted from Asenso-Boadi & Agbeibor (2010) with a slight adjustment

Figure 4.8 shows the domestic government health expenditure (% of current health expenditure) in Ghana, Nigeria, Cote d'Ivoire, South Africa, SSA and the world. Even though Ghana's health care expenditure as a percentage of current health expenditure was higher than the other two West African countries, it was below South Africa's, SSA's, and Czechia's world average. This implies that the country's investment in health development and, by extension, U5 may have been below expectations.

The National Health Insurance Scheme (NHIS) was formed in 2003, with the government in the position to subsidise the cost of health care. This resulted in a maternal (antenatal and postnatal) user fee exemption policy. Effective maternal and child health care depends on finances invested in health infrastructure (Kayode et al., 2016; Koduah et al., 2015). Since 2000, the GDP invested in health has been around 5% (World Bank, 2022).

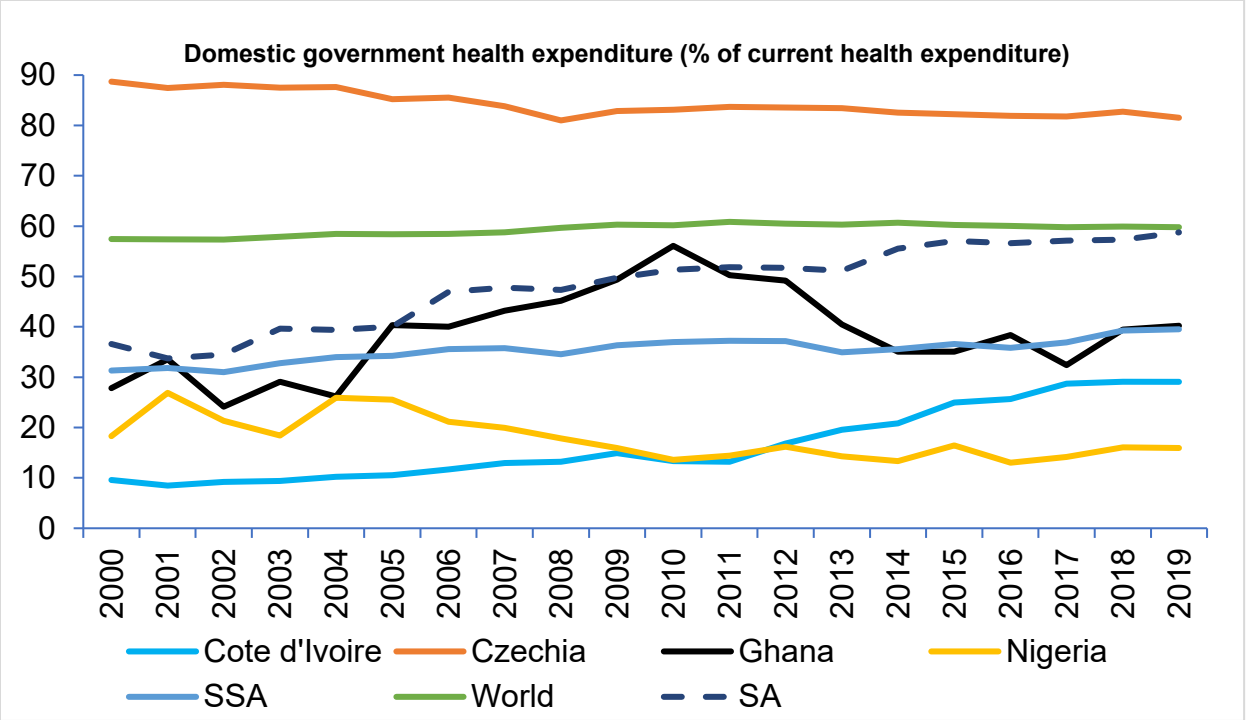


Figure 4-8: Domestic general government health expenditure (% of current health expenditure) in Ghana and other economies, 2000-2019
Source: World Bank, 2022

## 4.7 Conclusion

Based on the study's research objectives, three main theories were deemed relevant to understanding and analysing the interactions between policies, institutions and actors in formulating and implementing malaria health policies and interventions and their impact on U5 malaria health outcomes. The rights-based theory employed also explained how the need to fight malaria among U5 is a human rights issue that requires governments to implement relevant policies and interventions that promote the health of every citizen, including children. As advocated by the theory, it is the responsibility of the government to create the necessary structures that ensure the rights of citizens to participate in health policy decisions and implementation, as well as their rights to quality health care in terms of availability, accessibility, and acceptability, have been adequately safeguarded. The policy cycle theory provided an understanding of the various activities and actors involved in formulating and implementing health policies in Ghana. It was used to analyse how the top-down approach to policy formulation and implementation affects participation in health policy decision-making and the power dynamics that influence such decisions. The political economy theory also provided

insight into how politics influence the formulation and implementation of health policies in Ghana amidst the competing interests of state and non-state actors.

For this study, health system governance was conceptualised as an integrative and collaborative process where the government undertakes diverse roles as commander-in-chief, imposing mandatory regulations that define boundaries and rules for consumers and all stakeholders; as a provider of public goods and services; as the steward of public resources; and as a partner in collaborative undertakings with other jurisdictions, private sector, civil society organizations, and citizens in the formulation and implementation of health policies to enhance quality health delivery in an environment of equity, transparency, and accountability (Dubé et al., 2013).

The chapter also provided an overview of Ghana's health system governance, which has been evident since its independence. Ghana has made some progress in developing various legislations and regulations to govern activities in the health sector. The health sector is structured alongside the decentralised governance system. The health system comprises multiple actors such as the MoH responsible for policy formulation and GHS in charge of health policy implementation in collaboration with regional and district health directorates and non-state actors such as private health care providers and faith-based institutions development partners, CSOs, NGOs and interest groups. The central government primarily finances the health sector, development partners or donors and the Ghanaian populace through premiums to NHIS.

# 5 OVERVIEW OF THE STUDY AREAS

## 5.1 Study Areas

The study chose four (4) districts covering Ghana's North, South, East and West malaria categorisation of the National Malaria Control Programme. These districts are Obuasi Municipality in the Ashanti Region, Mpohor District in the Western Region, Kassena-Nankana East District in the Upper East, and Ada West District of the Greater Accra Region (See: Figure 5-1). A simple random technique was used to determine the four districts from each regional malaria categorisation: Kassena Nankana East from the North, Obuasi from the South, Mpohor from the West and Ada West from the East. These districts have been proven to have compelling cases. For example, in terms of economic activities, they are all mining districts. Similarly, these are districts not far from various regional capitals. Therefore, they clearly showed urban and rural disparities in Ghana's health sectors. Also, these districts are among the best and worst performing districts regarding malaria health outcomes. For example, Mpohor and Obuasi municipalities are among the worst-performing districts. Ada falls in the better-performing district with Kassena-Nankana East (National Malaria Control Programme, 2022). Of course, all the selected districts have differences in healthcare resources. However, to get a clear understanding of the policy outcomes of Ghana's health sector, we needed to select districts randomly but also with specific categories to capture the case understanding studies correctly and ascertain the best result.

### 5.1.1 Obuasi Municipality

The municipality is located between latitudes 5º35N and 5º65N and longitudes 6º35'W and 6º90'W. It occupies a total land area of 220.7 square km. The 2021 population and housing census showed 104,297 inhabitants in the district (Ghana Statistical Service, 2021). Malaria, Acute Respiratory Infection, Rheumatism and Diarrhoea are prevalent in the municipality. The implementation of the malaria control programme in the area over the years by the AngloGold Ashanti mining company also informed the choice of the area to understand why the district has had high numbers of malaria cases despite the touted success of the malaria spraying programme in the district. The NCMP malaria data for 2021 revealed that 1137 children U5 tested positive

for malaria out of 4363 children (National Malaria Control Programme, 2022). Thus, the district was mainly selected for the study because of the high prevalence of malaria and mortality rate among children U5.

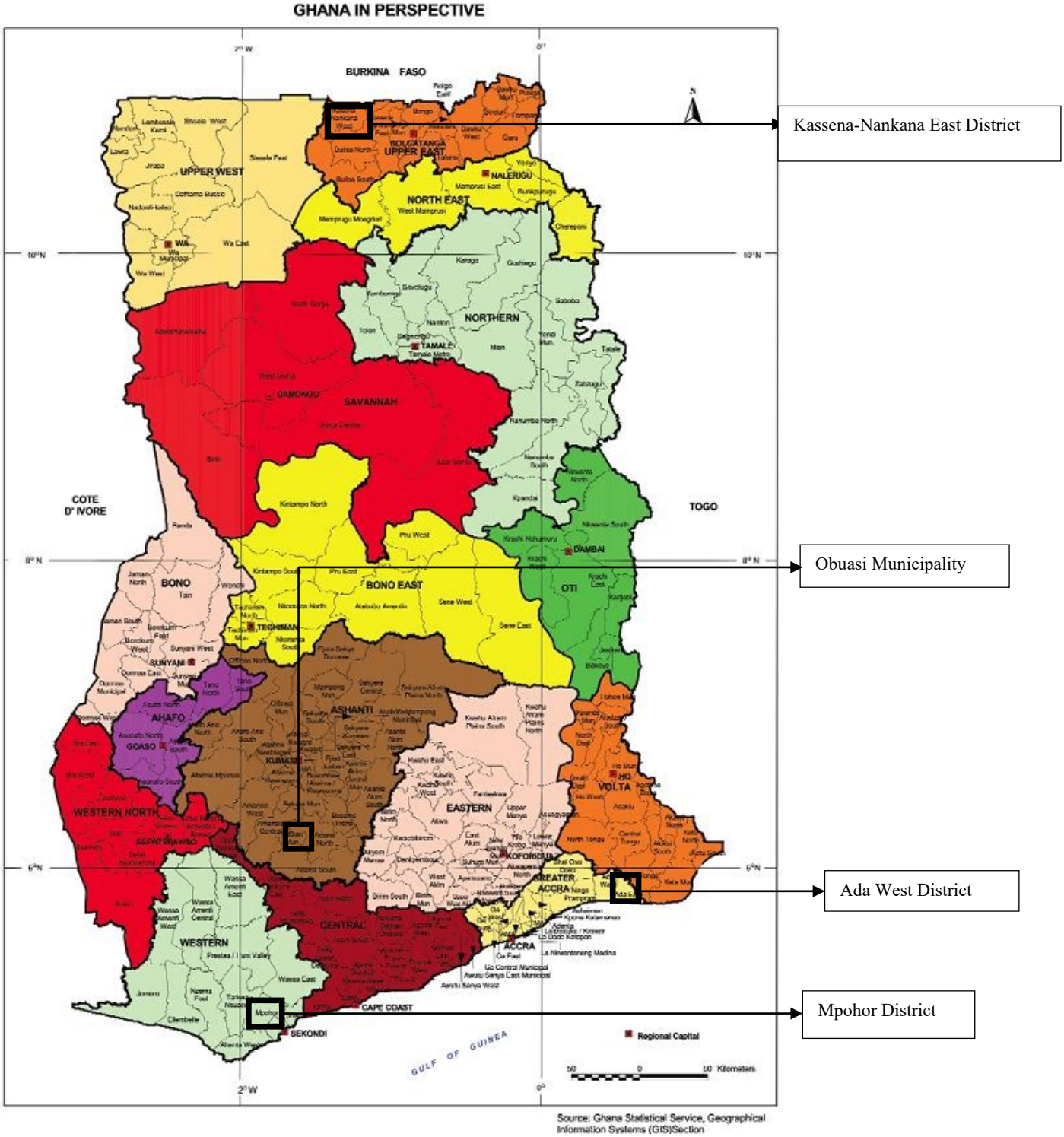


Figure 5-1: A map of Ghana showing selected study areas

### 5.1.2 Mpohor District

The district occupies a total land area of 524.533 square kilometres. The district population was estimated to be 52,473 in 2021 (Ghana Statistical Service, 2021). Senyefia Bosson-Amedenu and Kojo Amuah Prah (2016) attempted to determine the trend and the seasonal (wet and dry seasons) change of malaria prevalence in the Mpohor district of Ghana using a monthly malaria morbidity cases for six years (2008 - 2013). Malaria prevalence in the wet and dry seasons varied. Malaria prevalence was 56.4 % in the wet season and 43.6 % in the dry season, and the figure fluctuated over the period understudied. Additionally, malaria prevalence significantly varied in male and female children U5. Children below the age of four in a part of the district were found to have an 18% rise in risk than their cohorts in other communities. High malaria cases in the district influenced the choice of the area to be part of the study. The district recorded an 81.5% malaria prevalence rate in 2021 (National Malaria Control Programme, 2022). The burden of malaria cases in the district (Ghana Statistical Service, 2014) influenced the researcher to choose the area for the study.

### 5.1.3 Kassena-Nankana East Municipality

The Municipality lies within the Guinea Savannah woodlands. It lies between latitude 11°10’ and 10°3’ North and longitude 10°1’ West. The district population was estimated to be 99,895 in 2021 [29]. The municipality has about 27 health facilities comprising one hospital (War Memorial Hospital), 20 CHPs facilities, two health centres, one Research Center (Navrongo Health Research Center), one CHAG clinic and two private clinics. Emergency Medical Services (EMS) also provides emergency and medical care services, essential pre-hospital assistance and transport to healthcare facilities for injured individuals. The health institutions, however, are ill-equipped, with low doctor and nurse patient ratios. Similarly, the doctor-to-population ratio was 1:63,297, against the World Health Organization's recommended ratio of 1:10,000 for doctors and 1:1000 for nursing [32]. The 2021 malaria data from NMCP indicate that out of 2878 children U5 tested in the district, 808 had malaria (National Malaria Control Programme, 2022).

### 5.1.4 Ada West District

The district is located in the Greater Accra Region of Ghana. The district's population was 76,087 in 2021 (Ghana Statistical Service, 2021). There are about nine (9) health facilities in the neighbourhood consisting of one polyclinic, three (3) health centres and five Community Health Planning and Services (CHPS) centres. The district, however, has no private health facility but several Traditional Birth Attendants all over the community. In 2021, NMCP malaria data indicated that 120 children U5 were admitted with malaria (National Malaria Control Programme, 2022).

Arguably, as mentioned above, this primary research provides new insights into health sector governance regarding malaria issues among children U5 in Ghana's four districts. The results obtained could be reflected in other regions of the country. Thus, some findings could be generalised as malaria issues among children U5. Finally, solutions will be profiled to address or sustain government efforts to eradicate the region's menace.

## 5.2 Conclusion

This chapter presents the study areas that the research undertaken. The four districts were randomly selected from the four-malaria region categorised by the NMCP. These districts are Obuasi Municipality in the Ashanti Region, Mpohor District in the Western Region, Kassena-Nankana East District in the Upper East, and Ada West District of the Greater Accra Region.

# 6 RESEARCH METHODOLOGY

The chapter describes the methodology that was employed to carry out the study. It highlights the sample selection and size, data typology and collection, data management and analysis and ethical considerations.

## 6.1 Sample Selection and Size

The sample size is an essential feature of any empirical study that aims to make inferences about a population from a sample. In practice, the sample size used in a study is determined based on data collection and the need to have sufficient statistical power (Sim et al., 2018). Following Krejcie & Morgan's (1970) method for determining sample size from a given population, a sample size of 200 people was initially considered based on the selected case study areas. These actors comprised policymakers, managers, healthcare purchasers, health workers (physicians, nurses, allied health professionals), patients, professional associations, patient groups (such as parents with U5 babies), opinion leaders, religious authorities, affected communities, faith-based entities (i.e., traditional rulers), and civil society organizations. Health system governance has been classified as complex because of the plurality of actors (and 'actors' networks') and institutions.

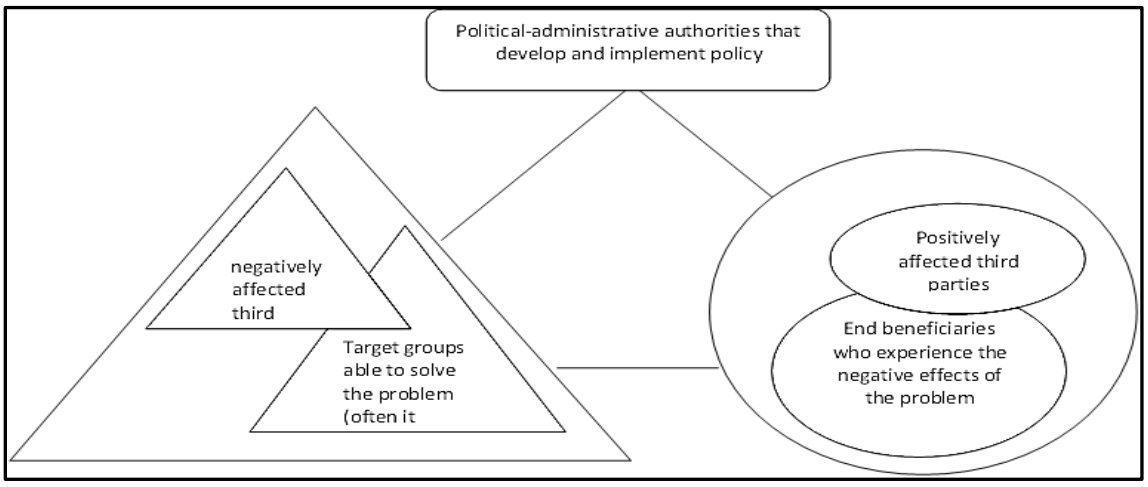


Figure 6-1: Actors' selection Triangular
Source: Knoepfel et al., 2010 and with adjustment from the researcher

Therefore, to make the study richer in data collection and achieve a focused analysis of the actors involved in Ghana's health system governance, 'actors triangular' (illustrated in figure 6-1)

approach was considered. He argues that empirical policy analysis should have a well-defined social or public problem to ascertain the right actors for the research. The selection of the respondents was based on the case study areas and the 'triangle of actors' based on their knowledge of the issue (Knoepfel et al., 2010). The respondents include individuals in different households, heads of state, and public institutions like hospitals and international organisations.

Table 6-1: Actors Matrix

| | Actors | Location | Number of participants |
|---|---|---|---|
| **Government and State Institutions and Agencies** | Ministry of Health (MoH) | Accra | 2 |
| | Ghana Health Service (GHS) | Accra | 2 |
| | National Malaria Control Programme (NMCP) | Accra | 1 |
| | Food and Drugs Authority (FDA) | Accra | 1 |
| | National Health Insurance Authority (NHIA) | Accra | 1 |
| | Parliament (Health Committee) | Accra | 2 |
| **Sub-national institutions** | District Health Director | Ada West, Mpohor, Obuasi, Kassena Nankana. | 4 |
| | District Chief Executive/District Coordinating Director | Ada West, Mpohor, Obuasi, Kassena Nankana. | 4 |
| | District Hospital Administrator | Ada West, Mpohor, Obuasi, Kassena Nankana. | 4 |
| | Chief Medical Officer (District Hospital) | Ada West, Mpohor, Obuasi, Kassena Nankana. | 4 |
| | Matron of Nurses (District Hospital) | Ada West, Mpohor, Obuasi, Kassena Nankana. | 4 |
| | Private Health Provider | Ada West, Mpohor, Obuasi, Kassena Nankana. | 4 |
| | Religious Leaders (Priest and Imam) | Ada West, Mpohor, Obuasi, Kassena Nankana. | 4 |
| | Traditional Leader (Chief) | Ada West, Mpohor, Obuasi, Kassena Nankana. | 4 |
| | Mothers with Children U5 | Ada West, Mpohor, Obuasi, Kassena Nankana. | 200 |
| | **Total** | | **241** |

Source: Compiled by the author

Specifically, actors include the Members of Parliament, the Ministry of Health (MOH) and its implementation and regulatory agencies such as the Ghana Health Service (GHS), National

Health Insurance Authority (NHIA), Food and Drugs Authority (FDA), National Malaria Control Programme (NMCP). Some non-public sector institutions were selected for the study due to their vital role in formulating and implementing health policies. These included the primary healthcare providers (Doctors, Nurses, and Hospital Administrators), private healthcare providers, traditional leaders, religious leaders, and mothers with children under five. Purposive sampling was employed to select key officials due to their experience and knowledge of the subject matter under investigation. In addition, 'Snowball' approach was employed whereby some of the respondents suggested other relevant respondents that could be interviewed. As a result, the total sample size of respondents involved in the study was 241. The specific categorisations of the institutions and the number of respondents are presented in the Actors Matrix in Table 6.1.

## 6.2 Data Sources: Typology and Collection Methods

Drawing upon a multidisciplinary approach, this study uses primary and secondary data to assess the implications of malaria on U5 mortality in Ghana and some selected districts. For the secondary research, time-series data are obtained from the World Bank, World Development Indicators, Ghana Statistical Services, WHO, UNICEF and other reputable agencies. Also, books, reports, and online publications are obtained and used in this study.

This study used qualitative and quantitative data to examine how political mechanisms drive policy developments in Ghana's health systems and the consequent impact on health outcomes in children U5 affected by malaria. This allowed the researcher to look into the dynamic layers of institutional structure, actors involved in eradicating U5 malaria, their actions in addressing the U5 malaria issue and their overall health. The systematic qualitative approach helped conduct this research. This approach was used based on the need for an interpretive paradigm into the concepts, theories and influences of literature that have effects similar to the objective based on the interactions or interconnections of actors and institutions and the policies in the case of U5 malaria in Ghana.

In addition, primary qualitative data was gathered through fieldwork in Ghana from 2017 to date. Semi-structured interviews were conducted with key actors from the selected national and sub-national government institutions and agencies and key local stakeholders, such as private health providers, religious leaders (Priest and Imam), and Traditional leaders (Chief). The interviews

were recorded after prior consent was sought from the respondents. Notes were taken during the interviews, especially during sessions with participants who did not want the interview to be recorded. The interview guide used for the interviews was structured based on the research questions. Mothers with Children U5 who partook in the study were interviewed using a closed-ended questionnaire. Field visits to the study districts helped enable participant observation of health practices at the various health centres to obtain first-hand information and empirically investigate the case of early childhood malaria and its implications (mortality) across the selected regions in Ghana.

Questionnaire administration with Mothers of U5 also provided primary quantitative data concerning their experience with health care practices and how they impacted malaria health outcomes of their children U5. The questionnaire contained mainly closed-ended questions that captured respondents' demographic information and the experiences of mothers of U5 with the healthcare system regarding issues of availability, accessibility, affordability, and quality of healthcare (see Appendix 8-0). Whilst some of the questions required 'Yes' or 'No' responses, a Likert scale response ranging from 'strongly disagree to agree strongly' was used for respondents to indicate the extent to which they agree or disagree with statements on their experience with health care delivery for their children. The quantitative data was beneficial as it complemented and corroborated qualitative data gathered through interviews.

## 6.3 Data Management and Analysis

Due to the use of both mixed-method approaches for the study, qualitative and quantitative data analysis methods were employed to analyse the collected data. Qualitative data were analysed using the thematic analysis technique. The thematic analysis aims to group qualitative data or transcribed interviews into similar patterns and develop themes from these patterns (Braun & Clarke, 2019).

As a result of using this technique, recorded interviews were transcribed verbatim to capture every response provided by the participants to have an accurate record of the discussion with the participants in text. The transcribed data were then coded. Coding the data enabled the researcher to identify critical statements and reflections vital to the research objectives and the study's analytical interest. In addition, it allowed the researcher to connect critical remarks by the

respondents to the theoretical and conceptual propositions of the study. The data were then categorised based on relationships, differences, and similarities. Themes were then assigned to the categories in line with the analytical and conceptual goals of the study. The study findings based on the qualitative data were presented and supported with verbatim quotations from the respondents.

The qualitative analysis provided answers to research Question 1: *What are the critical discrepancies between malaria health policy strategies and actual implementation processes?* And Question 2: *What are the institutional and policy shortcomings of the effective implementation of health policy strategies concerning U5 malaria eradication, and how to deal with them?*

Qualitative analysis was further used to test Hypothesis 1: *The hierarchical structure of the public health system in Ghana inhibits the effective participation of other institutions and actors to improve U5 malaria outcomes*.

Quantitative secondary data gathered were presented using a graphical representation displaying a trend analysis of the number of malaria cases among U5 as well as some U5 malaria mortality cases, financial and resource allocations by state and non-state actors to the health sector, the available number of healthcare facilities and workers to a patient ratio among others.

Quantitative primary data were processed using Statistical Package for Social Sciences (SPSS) version 22, Gretl statistical software and MS Excel. Descriptive statistics were used to analyse the demographic characteristics of respondents and mothers with U5 experience seeking health care for their children. A multiple regression analysis using the ordinary least square (OLS) is conducted to examine the impact of the interactions among actors, institutions, and policies on children's U5 mortality, especially with malaria. Independent variables considered were the 3AQ: Availability, Accessibility, Affordability and Quality. The dependent variable is children's U5 mortality in general and mortality due to malaria.

The regression analysis was used to answer research question 3: *Is there any relationship between health expenditure, women's employment, neonatal, low birth rate, portable water, adolescent fertility, anaemia, pneumonia, malaria incidence, children overweight, stunting, insecticide-treated bed nets and maternal deaths and U5 mortality, especially from malaria in*

*Ghana?* Moreover, question 4: *Is there any relationship between the age and marital status of mothers, quality of services provided by the NHIS, amount of money spent on malaria infection, difficulty in accessing healthcare, transport system and U5 mortality from malaria in Ghana?*; moreover, subsequently test hypothesis 3:*There is no relationship between health expenditure, women's employment, neonatal, low birth rate, and portable water, adolescent fertility, anaemia, pneumonia, malaria incidence, children overweight, stunting, insecticide-treated bed nets and maternal deaths and U5 mortality, especially from malaria in Ghana; and* hypothesis 4:*There is no relationship between age and mothers' marital status, quality of services provided by the NHIS, amount of money spent on malaria infection, difficulty in accessing healthcare, transport system and U5 mortality from malaria in Ghana.*

## 6.4 Model Estimations

### 6.4.1 Model Estimation Based on Secondary Data

Prior to carrying out the field research on children's U5 health, desk research was carried out. The models used in this study are based on similar studies (Abu et al., 2015; Kanmiki et al., 2014, 2014; Nyaaba et al., 2020; Worku et al., 2021) on children's U5 mortality in other countries and regions. Expressly, health expenditure, women's employment, neonatal mortality, low birth rate, and portable water, adolescent fertility, anaemia, pneumonia, malaria incidence, children overweight, insecticide-treated bed nets and maternal death indicators were incorporated into the regression model to determine their relationship with U5 mortality in Ghana over two decades. The multivariate regression is mathematically presented as follows:

$$U5MR_t = \beta_0 + \beta_1 DGHE_t + \beta_2 WEM_t + \beta_3 WATER_t + \beta_4 NMR_t + \beta_5 LBB_t + \beta_6 AFR_t + \beta_7 ANEMIA_t \beta_8 + PHEUNOMIA_t + \beta_9 OVERWEIGHT_t + \beta_{10} ITNS_t + \beta_{11} MMR_t + \beta_{12} MC_t + \varepsilon_t \quad (1)$$

Where:

U5MR is the annual rate of children U5 mortality rate (deaths per 1000 live births) in Ghana. DGHE represents domestic general government health expenditure (% of current health expenditure). It is the share of current health expenditures funded from domestic public sources

for health, including domestic revenue as internal transfers and grants, transfers, subsidies to voluntary health insurance beneficiaries, non-profit institutions serving households or enterprise financing schemes, and compulsory prepayment and social health insurance contributions. WEM stands for female employment to population ratio, 15+ (%). WATER represents the percentage of the population using safely managed drinking water services (%). NMR stands for neonatal mortality rate (per 1,000 live births), which is the number of neonates dying before reaching 28 days of age. LBB denotes low-birthweight babies (% of births), newborns weighing less than 2,500 grams, with measurements taken within the first hour of life before significant postnatal weight loss. AFR represents Ghana's adolescent fertility rate (births per 1,000 women ages 15-19). ANAEMIA is the prevalence of anaemia among children (% of children U). It is the percentage of children U5 whose haemoglobin level is less than 110 grams per litre at sea level. Anaemia has various correlates based on its underlying nutritional deficiencies, and chronic diseases are notably the most common etiologies of anaemia in children U5; PNEUMONIA is the number of children U5 dying from pneumonia. Pneumonia, the deadliest communicable disease of lower respiratory tract infection rates, is most remarkable in children U5. It occurs about five times more frequently in SSA countries like Ghana. OVERWEIGHT is the prevalence of overweight, weight for height (% of children U5) in Ghana. Being overweight in childhood significantly impacts their physical and psychological health.

ITNs are insecticide-treated bed nets that form a protective barrier around people sleeping under them. ITNs have been a significant intervention to prevent malaria, especially among pregnant women and children U5. ITNs also act as mosquito repellents and kill mosquitoes. MMR indicates a calendar year's maternal mortality ratio (per 100,000 live births). MC shows the number of new malaria cases per 100,000 individuals across Ghana. $\beta_0$ is the *Y*-intercept; while $\beta_1$ to $\beta_{12}$ are the slopes associated with each of the independent variables; $\varepsilon$ is the error term. This study covers 2 decades, from 2000 to 2019. The period to assess the situation was based on SDG2030 and data availability. The findings are also compared with the health policy implementations in the country.

To investigate factors contributing to malaria deaths of children U5 in Ghana, variables such as stunting, malaria cases, overweight, low-birthweight, insecticide-treated nets, water provision,

government health expenditure, and pneumonia were incorporated into the regression model 2. The model is mathematically presented as follows:

$$U5MRM_t = \beta_0 + \beta_1 DGHE_t + \beta_2 WATER_t + \beta_3 LBB_t + \beta_4 MC_t + \beta_5 ITNS_t + \beta_6 OVERWEIGHT_t + \beta_7 STUNTED_t + \beta_8 PHEUMONIA_t + \varepsilon_t \quad (2)$$

Where:

U5MRM denotes children's U5 mortality rate from malaria (measured as the number of deaths per 100,000 individuals). STUNTED represents the prevalence of stunting and height for age (% of children U5). It impairs the growth and development of children U5 when they experience poor nutrition, repeated infection, and inadequate psychosocial stimulation; WHO defines stunted children if their height for age is above two standard deviations below the Child Growth Standards median. A substantial number of children's deaths are attributed to stunting. $\beta_0$ is the *Y*-intercept, while $\beta_1$ to $\beta_8$ are the slopes associated with each of the independent variables; ε is the error term.

### 6.4.2 Model Estimation Based on Primary Data

Similarly, the four districts where the field research was conducted are used for the empirical analysis after the descriptive analysis and empirical analysis from secondary data were conducted. Similarly, indicators of children U5 malaria and its determinants are used for the analysis. The model is chosen based on previous similar studies (Amek et al., 2018; Florey et al., 2017; Kwarteng Acheampong & Eyram Avorgbedor, 2017; Nyarko & Cobblah, 2014) and the nature of the primary data. This is used to partially investigate the interactions among actors, institutions, and policies that should necessitate adequate funding for availability, accessibility, affordability, and quality of health care to prevent or reduce malaria issues among children U5 in the country's study areas. The third multivariate regression model is mathematically presented as follows:

$$U5MM = \beta_0 + \beta_1 X1 + \beta_2 X2 + \beta_3 X3 + \beta_4 X4 + \beta_5 X5 + \beta_6 X6 + \beta_7 X7 + \beta_8 X8 + \beta_9 X9 + \beta_{10} X10 + \beta_{11} X11 + \beta_{12} X12 + \epsilon \quad (3)$$

Where:

U5MM represents U5 mortality due to malaria in Ghana's four districts (Mpohor, Ada West, Obuasi, Kassena-Nankana) (numbers). $X_1$ represents the age of the mothers of children U5 in four districts of Ghana (years). $X_2$ represents the marital status of mothers of children U5 in the four districts of Ghana (single, married, divorced). $X_3$ represents the years of mothers living in the four districts (years). $X_4$ represents the quality of services the NHIS provides in four districts (rated). $X_5$ stands for money spent by the mothers on malaria diseases (in Ghana, cedis). $X_6$ denotes mothers who always seek health care, notably malaria care for their children, around four districts (yes or no). $X_7$ is the number of times a child has had malaria in each period in four districts (numbers). $X_8$ represents difficulty in accessing healthcare facilities for children U5 in four districts. $X_9$ stands for easy access to medical facilities in four districts (yes or no). $X_{10}$ represents the effectiveness of mosquito nets in preventing children from malaria in four districts, as reported by the respondents. $X_{11}$ stands for the availability and application of insecticides to control malaria at home in four districts (yes or no). $\beta_{12}$ stands for the affordability of the transport system to and from the healthcare facility in four districts; $\beta 0$ is the intercept, while $\beta_1$ to $\beta_{12}$ are the slopes associated with each of the independent variables; $\varepsilon$ is the error term.

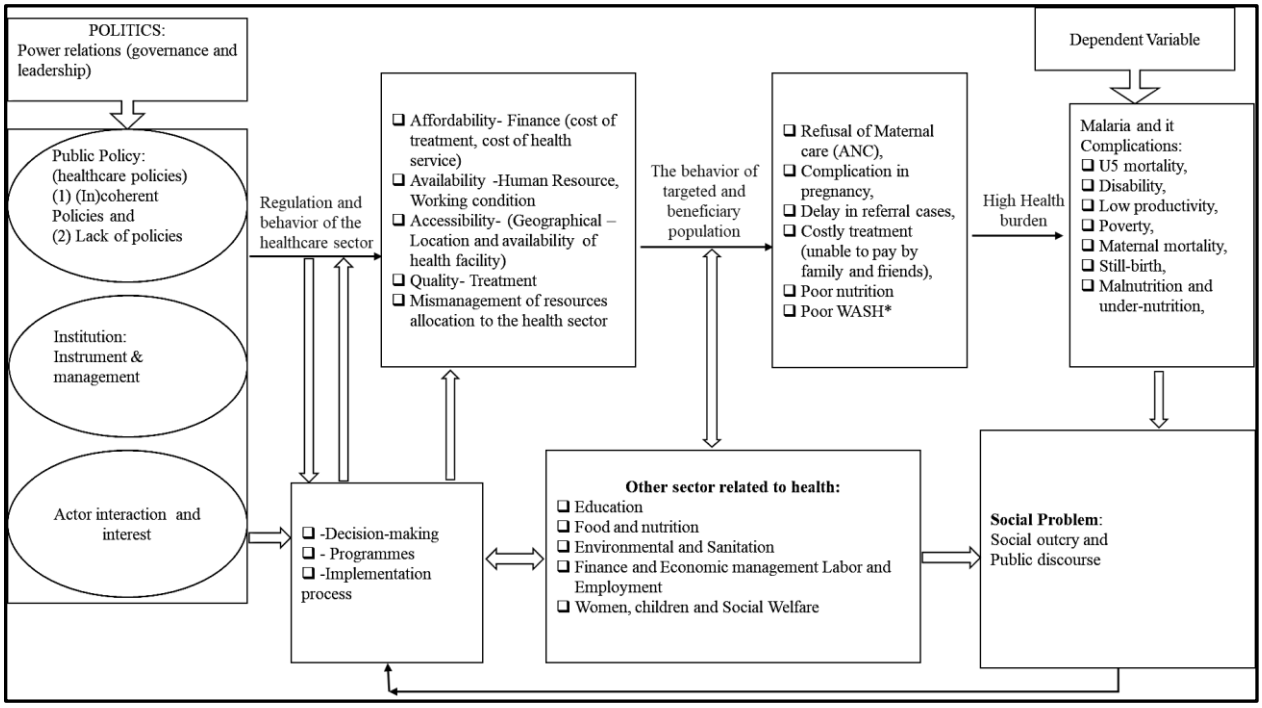


Figure 6-2: Analytical diagrammatical illustration of policies affecting malaria mortality
Source: Researcher's own work. *WASH = Water, Sanitation and Hygiene

## 6.5 Ethical Considerations and Limitations of the Study

Before the commencement of data collection, an introductory letter from Charles University was presented to the various institutions that participated in the study to indicate the study's research objectives and to seek their consent to participate. They were assured that the survey was mainly for academic purposes. The secondary data needed were vital to achieve the study's objectives. Delays in responding to the researcher's request, especially by public agencies, affected the projected schedule for data collection at the district level due to the bureaucratic and hierarchical arrangements where national and regional health directorates approved before data could be collected and obtained from the district health directorates.

Confidentiality has been a paramount ethical issue in addressing policy-related studies in health, especially looking at the politicisation of the health sector in Ghana. One of the issues of great concern to most respondents was the confidentiality and privacy of the information and identity. The research scope (health and governance) allows people affected by the policy process and results to give their opinions with open-ended interviews and semi-structured questions. Indeed, some of the respondents interviewed, such as “ordinary citizens” and some civil servants as well as politically affiliated persons, expressed fear of disclosing certain information and insisted on their ideas being kept confidential and their identities anonymous. This included respondents from the institutional level.

Due to this, all respondents' informed consent and anonymity were maintained and protected using codes as labels throughout the study. Some institutional officers wanted money before any document would be shared. They were enlightened on their role in the study, assisting the researcher in the data collection activity to find answers to the research questions. Protecting all participants' rights and confidentiality was assured, and the researcher tried not to subject the respondents to any undue stress that could influence their input or thought. All data were cross-checked and verified to limit the error.

## 6.6 Conclusion

This chapter has provided the research methods used to conduct the study. It highlighted the sample size and technique used to select study participants. A total of 241 respondents chosen

purposively participated in the study, comprising state and non-actors established from various institutions across the four study areas. A mixed-method approach was adopted to collect and analyse primary and secondary data. Primary data were collected through interviews and questionnaires. Thematic analysis was used to analyse qualitative data, while descriptive statistics and multiple regression analysis were employed to analyse both primary and secondary quantitative data. The model estimation based on primary and secondary data was also presented, highlighting the independent and dependent variables as presented in the analytical framework in figure 6-2, The chapter concludes with the ethical considerations and limitations of the study.

# 7 RESULTS AND DISCUSSION

This chapter presents the findings and interpretations of the data collected from the study participants across the four districts. The chapter provides results on the demographic characteristics of the respondents, the health policies towards the eradication of malaria among children U5, actors' configuration and their interactions in the formulation and implementation of malaria health policies at the district level, and the impact of malaria health policies on U5 malaria outcomes, and finally the challenges inhibiting effective implementation of the health policies towards the eradication of malaria among U5.

## 7.1 Demographic Characteristics of Respondents

This section presents the demographic characteristics of the respondents who participated in the study. The findings of demographic characteristics are presented in Table 7.1. The Table shows that most respondents (35.7%) were between 26 and 33 years old. Also, 25.7% were between 18 and 25 years old, 24.1% were between the ages of 34 and 41, 11.2% were between 42 and 49, and the remaining 3.3% were 50 years old and above.

Table 7-1 further shows that apart from 10.4% of the respondents with no formal education, most respondents (89.6%) had some level of education. Of this, 35.7% had primary or basic level education from kindergarten to junior high, 28.2% had attained secondary level or senior high-level education, 15.8% had tertiary level education, whilst 9.9% had attained post-graduate level education.

Table 7-1: Demographic characteristics of respondents

| Demographics | Response | Frequency (N=241) | Percent (%) |
|---|---|---|---|
| Age | *18– 25years* | 62 | 25.7 |
| | *26 – 33years* | 86 | 35.7 |
| | *34 – 41 years* | 58 | 24.1 |
| | *42 – 49 years* | 27 | 11.2 |
| | *50 years and above* | 8 | 3.3 |
| Highest Educational Level | *No formal education* | 25 | 10.4 |
| | *Primary/Basic level* | 86 | 35.7 |
| | *Secondary level* | 68 | 28.2 |
| | *Tertiary level* | 38 | 15.8 |
| | *Post-graduate level* | 24 | 9.9 |
| Marital Status | *Single (Never Married)* | 14 | 5.8 |
| | *Married* | 215 | 89.2 |
| | *Divorced/Separated* | 8 | 3.3 |
| | *Widowed* | 4 | 1.7 |
| Length of years in district (Mothers) | *1 – 4 years* | 24 | 12 |
| | *5 – 9 years* | 47 | 23.5 |
| | *10 -14 years* | 68 | 34 |
| | *15 years and above* | 61 | 30.5 |

Source: Field Data, 2019

Most participants, 89.2%, were married, 5.8% were single, 3.3% were divorced or separated, and 1.7% were widowed. Also, 34% of the mothers who participated in the study have resided in their districts for between 10 and 14 years, 30.5% have been in their districts for 15 years and above, and 23.5% have lived in the district between 5 and 9 years, whilst 12% have resided in their districts between 1 and 4 years (Table 7-1).

## 7.2 Discrepancies between Malaria Health Policy Strategies and Actual Implementation

The study's first objective was to identify the discrepancies between health policy strategies to eradicate U5 malaria and implementing these policies. To achieve this, primary data collected from the districts under study were analysed to examine the performance of the various health policies geared towards eradicating malaria, especially among U5, in line with the intent of these policies.

The study found that several health policies have been implemented to eradicate malaria among children and reduce child mortality. While some of these policies are nationally formulated and

supported by donors and international partners, others are internationally developed, with specific cases being the MDGs and SDGs. These policies are targeted at malaria prevention and treatment. Interviews with study participants revealed that the main health policies aimed at reducing malaria prevalence among children U5 in the study areas were the NHIS to provide free health care financing for citizens and children U5. The distribution of Insecticide Treated Bed-Nets (ITN) to pregnant women, households and school children; indoor residual spraying, and the use of Artemisinin-based Combination Therapies (ACTs) are all under the National Malaria Control Programme (NMCP), which has been the major national interventions to reduce malaria prevalence in the country haven't been well accessible and utilised. International partners such as the USAID, US PMI, Global Fund and Against Malaria Foundation (AMF) have largely supported the programme. Key informants at the GHS and NMCP interviewed commented:

*"When it comes to fighting malaria in the country, some programmes have been formulated and implemented, with the current programme being the National Malaria Control Programme which has been supported by various international partners and governments such as US PMI and Global Fund. The strategy has mostly been the distribution of treated insecticide nets, indoor spraying rooms with chemicals, and using ACTs."* [Programme Official, NMCP)

*"Ghana has never lacked national health policies and, to be specific, child health policies. The MDGs alone led to some policies and programmes being developed to achieve child health targets, and now there are the SDGs that the MoH and GHS are doing their best to achieve through various programmes. Policies such as the U5 child health policy and even the Ghana National Newborn Health Strategy are specific examples, to mention a few. Donors and other international partners mostly support these policies because national funding tends to be inadequate"* [Official, GHS]

### 7.2.1 The NHIS and Malaria Eradication among Children U5

Since its introduction in 2003, the NHIS has remained a significant health policy enabling access to health care delivery. Respondents admitted that the NHIS had promoted child and maternal health outcomes since, to a more considerable extent, it has increased access to health services to a large section of the populace by limiting the financial burden that used to serve as a major barrier to access health care. However, some argue that that they have been denied access to

health services or have had long wait periods due to having the NHIS and not private insurance. This, however, do not dispute the fact that NHIS has granted some form of accessibility.

*"One main policy that anyone in the country can admit to being significant is the NHIS which has created opportunities for every citizen, especially the poor, to access health care. Before the policy was introduced, many people, especially those in rural areas, could not pay for health care, affecting their access to quality health care. But currently, at least things are better than before, even though the government needs to do more"* [District Health Director, Mpohor]

Health officials interviewed also revealed that many mothers with U5 who visit their facilities are beneficiaries of the NHIS and can access health care without any challenge. Among the mothers who participated in the study across the four districts, 93% were beneficiaries of the NHIS, while 7% were not. 89% indicated benefitting from the scheme in seeking malaria treatment for their children, whilst 11% indicated otherwise (See: Table 7-2). This implies that mothers in the four districts are likely to seek malaria treatment from health facilities for themselves and their children due to the lesser financial barriers due to the NHIS.

Table 7-2: Access to NHIS

| Statement | Response | Frequency (N=200) | Percent (%) |
|---|---|---|---|
| **Are you a beneficiary of NHIS?** | *Yes* | 186 | 93 |
| | *No* | 14 | 7 |
| **Have you benefited from the NHIS in seeking malaria treatment for your children?** | *Yes* | 178 | 89 |
| | *No* | 22 | 11 |

Source: Field Data, 2022

However, although the NHIS grants free access to health care in public health facilities for malaria treatment, it was revealed by the study participants that clients usually make payments for drugs when accessing health care. 94.4% of the mothers with U5 indicated paying for drugs despite being beneficiaries of NHIS. Of this, 53.3% spent between GH¢11 - GH¢20 on drugs, 39.3% spent between GH¢5 and GH¢10, 4.8% spent above GH¢30 and 3% spent between GH¢21 and GH¢30 on drugs. This suggests that mothers are most likely to spend GH¢20 on drugs, which in most rural settings would be deemed expensive. Most mothers (78%) indicated that paying for drugs even though their children are beneficiaries of NHIS stated some form of discrepancy as the policy is supposed to ensure that clients get their medication after diagnosis

(Table 7-3). However, these respondents indicated that some mothers could afford the medicines they were told to buy from the pharmacies, while 22% disagreed. Health personnel admitted to this phenomenon of clients being requested to buy drugs even though they are beneficiaries of the NHIS. They indicated that the main reasons for the out-of-pocket drug payments are some drugs not being covered by the NHIS, but malaria drugs are one of the leading medications included in the NHIS, and clients not being served makes it problematic. Also, the unavailability of specific medicines that clients are asked to buy from nearby licensed pharmacies or drug stores.

*"A key observation and interactions with some mothers revealed that some of them come to the hospital knowing the NHIS would cater for them but only for them to be told to pay for drugs or go and buy them from pharmacies. Some of them get frustrated because they don't come with any money and regret coming to the hospital if they have to buy medicines from the pharmacy"* [Matron of Nurses, Mpohor]

*"Since some medicines are unavailable, mothers are told to buy them at the nearest licensed drug store or pharmacy. In other instances, people pay for medicines at the hospital because the NHIS does not cover those medicines. Usually, it is something most mothers and clients are unhappy about because they know that with the NHIS, they don't have to pay for anything".* [Nurse, Kassena-Nankana]

*"There are some drugs that NHIS do not cover, so clients are asked to either pay for them or go to the pharmacy to buy them. Sometimes, we run out of stock medicines, so we will write the name of medicines for a client to go and buy them".* [Nurse, Ada West]

*In some cases, we have to let them pay for everything because the government takes forever to pay for the hospitals' service given to the patient. We treat clients with our resources with the hope that the government will pay us back in time so we can restock the facility, only for the government to take months, sometimes years, to reimburse us for our service and treatment fees. How do they (NHIA/government) expect us to work or treat a patient with the NHIS. Honestly, I have stopped treating clients who come to this hospital with NHIS……I feel sorry for them, but what can we do…..we can't work in space or vacuum. (Doctor at Obuasi)*

Table 7-3: Payment for drugs under NHIS

| Statement | Response | Frequency | Percent (%) |
|---|---|---|---|
| **Did you have to pay for drugs even with NHIS when seeking malaria treatment for your children?** | *Yes* | 168 | 94.4 |
| | *No* | 10 | 5.6 |
| **Total** | | **178** | **100%** |
| **If yes, how much did you spend?** | *GH¢5 - GH¢10* | 66 | 39.3 |
| | *GH¢11 - GH¢20* | 89 | 53 |
| | *GH¢21 - GH¢30* | 5 | 3 |
| | *Above GH¢30* | 8 | 4.8 |
| **Total** | | **168** | **100%** |
| **I was able to afford the drugs I was asked to buy even with NHIS** | *Strongly disagree* | 4 | 2.4 |
| | *Disagree* | 33 | 19.6 |
| | *Agree* | 103 | 61.3 |
| | *Strongly agree* | 28 | 16.7 |
| **Total** | | **168** | **100%** |

Source: Field Data, 2019

The initial findings reveal an apparent discrepancy between policy intention and actual practice. The NHIS policy ensures that beneficiaries receive malaria treatment without payment. However, the findings of the foregoing study suggest this has not been the case because beneficiaries pay for drugs covered by the scheme. Also, the accessibility and distance between the location of the health facilities and clients creates a policy realisation challenge as people need to transport themselves to seek medical services.

### 7.2.2 Distribution of Insecticide Treated Nets (ITNs) Towards Malaria Prevention

Since the introduction of the Roll Back Malaria Partnership initiative in 1998 by the joint effort of WHO, UNICEF, UNDP and World Bank, the distribution of ITNs has been one of the significant interventions to prevent malaria, especially among pregnant women and children under five years. The ITNs protect against mosquito bites and the transmission of malaria parasites from one person to another. ITNs also act as mosquito repellents and kill mosquitoes. The NMCP, in partnership with PMI, Global Fund, and AMF, has been instrumental in the mass and continuous distribution of ITNs across the country to pregnant women, households, and school children. Interactions with district health officials and other district-level study participants across the four districts revealed that malaria interventions have mainly been through the distribution of treated insecticide nets. Treated insecticide nets are distributed freely to pregnant women during antenatal visits to district health facilities to prevent malaria among

pregnant women and their unborn children. It was also gathered that these nets are distributed at specific community vantage points to community members, especially mothers. Other participants also recounted situations where these nets were distributed to school children. To my surprise, some women interviewed, including me (researcher), never received it.

*"One main intervention to fight malaria in this district is the distribution of mosquito nets to pregnant women when they visit the hospital during antenatal sessions. Distribution is done at least every four months…At times distribution is also done at designated centres in the communities after the public announcement to community members, especially mothers"* [Matron of Nurses, Mpohor]

A respondent from Ada West also recounted:

*"In this district, the only malaria intervention I have known over the years is the distribution of the mosquito nets to pregnant women and, in some instances, community* members" [Matron of Nurse, Kassena-Nankana]

Mothers with children U5 corroborated this in their response to how they prevent their children from malaria at home. Almost all the mothers who participated in the study indicated using mosquito nets they received during antenatal sessions as a preventive measure against malaria. Out of the total 200 participants, 198 represented 99% of the respondents who use ITNs to prevent malaria at home, while only two indicated otherwise. All 200 participants (100%) agreed that they had benefited from the government's distribution of mosquito nets without paying for them (Table 7-4). However, a few of them raised issues that they find it challenging to use the nets due to the heat accompanying sleeping in them and other side effects such as itching the skin. As a result, it was discovered that some mothers occasionally use it and resort to other methods like mosquito sprays and coils to prevent malaria at home. However, these alternative methods are costly and put much pressure on their household income.

*"Some mothers reported some side effects their children experience due to the heat and chemicals when they sleep in the mosquito nets, so some of them said they stopped using the nets, but as of now, the same nets are being distributed. If an avenue was created that enabled the local people to voice out their grievances to the officials of the district health directorates, I think that would make policies meet the needs of the people*." [Matron of Nurse, Mpohor]

Table 7-4: Utilisation of ITNs

| Variables | Response | Frequency (N=200) | % | Mean | Std |
|---|---|---|---|---|---|
| I use insecticide-treated nets to prevent malaria at home | Yes | 198 | 99 | 1.01 | 0.10 |
| | No | 2 | 1 | | |
| I have benefited from the distribution of mosquito nets by the government | *Strongly disagree* | - | - | 4.11 | 0.314 |
| | *Disagree* | - | - | | |
| | *Neutral* | - | - | | |
| | *Agree* | 178 | 89 | | |
| | *Strongly agree* | 22 | 11 | | |
| I did not pay for the mosquito nets I received from the government | *Strongly disagree* | - | - | 4.24 | 0.43 |
| | *Disagree* | - | - | | |
| | *Neutral* | - | - | | |
| | *Agree* | 152 | 76 | | |
| | *Strongly agree* | 48 | 24 | | |

Source: Field data, 2022

The prevalent use of ITNs by mothers who participated in the study is affirmed by data obtained from the PMI, which established a growing trend in ITNs among children under five and pregnant women. The data revealed that between 2006 and 2019, the age of children U5 who sleep under ITNs increased from 22% to 54%. A similar trend was observed among pregnant women, with 20% sleeping under ITNs in 2008 and 49% in 2019 (Figure 7-1).

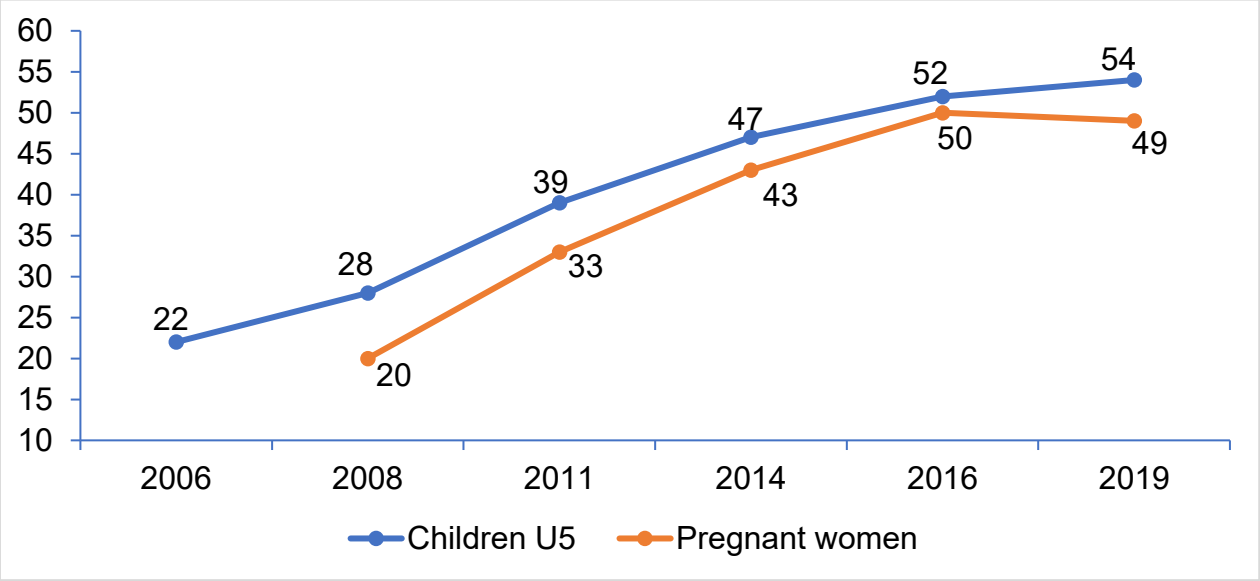


Figure 7-1: Use of ITNs among children U5 and pregnant women in Ghana
Source: U.S. President's Malaria Initiative (PMI), 2022

The study further sought to understand the availability of ITNs in the study areas if people were to procure them (See: Table 7-5). In the Mpohor district, 84% indicated mosquito nets were not easily available whenever they needed a new one. However, 8% said otherwise, as they agreed to the availability of mosquito nets when they needed a new one, while 8% were uncertain as they could neither agree nor disagree. In the Ada West district, 82% of the participants disagreed with the availability of mosquito nets in the area. However, 16% agreed, whilst 2% remained neutral. In the same manner, 72% of responses from the Obuasi district disagreed that mosquito nets were readily available in the area. 18.0% agreed that mosquito nets are readily available when a new one is needed, while 10% responded neutrally.

Lastly, in the Kassena-Nankana district, a majority of 78% were of the view that mosquito nets are not readily available in the area whenever the need arises. About 14%, on the other hand, agreed that mosquito nets are readily available, whilst the remaining 8% neither agreed nor disagreed. Commenting on this issue, a manager of a private pharmaceutical shop interviewed revealed that most pharmacy shops and clinics do not sell mosquito nets because people hardly buy them since they prefer to receive them free from the government. As a result, he mentioned that he had stopped selling mosquito nets for a long time.

*"Some time ago, we used to sell mosquito nets, but since the government started distributing them for free, we have stopped selling them and not only me but several pharmacy shops I know. So, you will hardly find them being sold. People prefer getting it free than buying it considering the price*." [Pharmacy Shop Attendant, Mpohor]

Table 7-5: District and Availability of mosquito nets

| **District** | | **Mosquito nets are easily available in my area when I need to get a new one** | | | **Total** |
|---|---|---|---|---|---|
| | | Disagree | Neither agree nor disagree | Agree | |
| Mpohor | Count | 42 | 4 | 4 | 50 |
| | % Within Area | 84.0% | 8.0% | 8.0% | 100.0% |
| | % of Total | 21.0% | 2.0% | 2.0% | 25.0% |
| Ada West | Count | 41 | 1 | 8 | 50 |
| | % within Area | 82.0% | 2.0% | 16.0% | 100.0% |
| | % of Total | 20.5% | 0.5% | 4.0% | 25.0% |
| Obuasi | Count | 36 | 5 | 9 | 50 |
| | % within Area | 72.0% | 10.0% | 18.0% | 100.0% |

| | | | | | |
|---|---|---|---|---|---|
| | % of Total | 18.0% | 2.5% | 4.5% | 25.0% |
| Kassena-Nankana | Count | 39 | 4 | 7 | 50 |
| | % within Area | 78.0% | 8.0% | 14.0% | 100.0% |
| | % of Total | 19.5% | 2.0% | 3.5% | 25.0% |
| **Total** | Count | **158** | **14** | **28** | **200** |
| | % within Area | 79.0% | 7.0% | 14.0% | 100.0% |
| | % of Total | **79.0%** | **7.0%** | **14.0%** | **100.0 %** |

Source: Field Data, 2022

The foregoing suggests that apart from the periodic mass distribution of mosquito nets by the government, they are not readily available to procure, and even if available, they are relatively expensive. This implies that many people rely significantly on the ITNs distribution intervention by the government.

### 7.2.3 Indoor Residual Spraying Intervention

Indoor residual spraying intervention has also been a key intervention implemented by NMCP in partnership with PMI and Global Fund in some districts in the country. The study identified that the Indoor Residual Spraying (IRS) intervention was implemented in districts with high malaria burden (>40% parasitemia) among children under-five, poor economic and health care infrastructure, and high malaria transmission season. IRS involves spraying surfaces of walls and houses with long-lasting residual insecticides, killing mosquitoes and other insects that come into contact with it. It was discovered that IRS is implemented only in some part of Ashanti, North East, Northern, Upper West and Upper East regions. IRS is implemented mainly by the AngloGold Ashanti Malaria control programme (AGAMal) with support from Global Fund in 15 districts comprising 11 districts in the Upper West Region and 3 in Upper East (Builsa South, Builsa North and Kassena Nanakana West), and Obuasi in the Ashanti Region. The PMI supports IRS in eight districts in the Northern Region (East Mamprusi, West Mamprusi, Bunkpurugu Yunyoo, Kumbungu, Karaga, Gushegu, Mamprugu Moaduri and Tatale-Sangule) and Cheroponi district in the North East region (U.S. President's Malaria Initiative (PMI), 2022).

Among the four districts investigated, the indoor spraying intervention was only found to be implemented in the Obuasi municipality. It was found that the intervention is largely a private

sector initiative carried out by the AngloGold Ashanti Mining Company (AGA) in Obuasi, which has been implemented since 2006. The AGA malaria Project involves engagement with communities within Obuasi, where the company operates, and other surrounding districts on malaria prevention, followed by periodic home visits to undertake indoor spraying. According to the Municipal Coordinating Director, though not every home benefits from indoor spraying, many homes have benefitted from the project. He said the project has significantly reduced malaria cases in the municipality.

*"Talking about malaria interventions, I am aware of the distribution of mosquito nets. But as you can see from the flyer posted on my door, the AGA mining company's malaria control programme has significantly reduced malaria in Obuasi. The mining company funded the project by visiting various communities' homes to spray their rooms with some chemicals to kill mosquitoes and other insects". (*Municipal Coordinating Director)

Table 7-6: Utilisation and accessibility of insecticide sprays

| Variables | Response | Frequency (N=200) | % | Mean | Std |
|---|---|---|---|---|---|
| **I use insecticide spray to prevent malaria at home** | Yes | 79 | 39.5 | 1.61 | 0.49 |
| | No | 121 | 60.5 | | |
| Insecticide sprays are not expensive to buy | *Strongly disagree* | 41 | 20.5 | 2.25 | 1.005 |
| | *Disagree* | 110 | 55 | | |
| | *Neutral* | 8 | 4 | | |
| | *Agree* | 41 | 20.5 | | |
| | *Strongly agree* | - | - | | |
| Insecticide sprays are easily available in pharmacies and stores in my area | *Strongly disagree* | - | - | 4.04 | 0.196 |
| | *Disagree* | - | - | | |
| | *Neutral* | - | - | | |
| | *Agree* | 152 | 76 | | |
| | *Strongly agree* | 48 | 24 | | |

Source: Field Data, 2022

Despite the implementation of the IRS (only in Obuasi), some participants relied on insecticide sprays personally purchased from shops to prevent malaria at home. The study found that 39.5% of participants use insecticide spray to prevent malaria at home, whilst 60.5% indicated otherwise. Most participants (75.5%) with a mean response of 2.25 admitted that the insecticide sprays were expensive, while 20.5% deemed them not expensive. However, all the respondents

(100%) agreed that the insecticide sprays are easily available in pharmacies and stores in their area, with a mean response of 4.04 (Table 7-6).

The preceding results indicate that the IRS policy is limited to some specific districts. Even in areas where it is implemented, people still rely on other methods to prevent malaria at home. This means that the IRS has not been largely successful in preventing malaria in districts where it is being implemented. Also, the study revealed that the government policy of the IRS exists, but the government has done nothing significant to ensure its implementation after years of repetition of the same policy.

### 7.2.4 Malaria Treatment

Based on NMCP's guidelines and objectives for case management, facility-based treatment of malaria among children U5 is recommended chiefly after diagnosis (either through microscopy confirmation or rapid diagnostic tests (RDTs). Healthcare providers should provide prompt, quality treatment based on the recommended quality-assured antimalarial medicines for positive malaria cases. Malaria treatment, however, can only be assured when health facilities are available and accessible, drugs are affordable, adequate health personnel and facilities are readily available, and quality treatment is responsive to the needs of the people.

#### 7.2.4.1 Accessibility to Health Facilities

Table 7-7 presents the accessibility of healthcare facilities in the various districts in Ghana. This implied the existence of healthcare facilities where mothers under U5 can seek healthcare for their children. About 88.5% of the respondents agreed that health facilities are easily accessible in their areas. In Mpohor district, 74% agreed they could easily access health facilities, while 26% disagreed. All the participants (100%) affirmed that healthcare facilities are easily accessible in the Ada West and Obuasi districts. In the Kassena-Nankana East district, 80% of the participants indicated that healthcare facilities are easily accessible, but the remaining 20% responded otherwise.

Table 7-7: District and Health care accessibility

| District | | Are health care facilities easily accessible in your area? | | Total |
|---|---|---|---|---|
| | | Yes | No | |
| Mpohor | Count | 37 | 13 | 50 |
| | % within Area | 74.0% | 26.0% | 100.0% |
| | % of Total | 18.5% | 6.5% | 25.0% |
| Ada West | Count | 50 | 0 | 50 |
| | % within Area | 100.0% | 0.0% | 100.0% |
| | % of Total | 25.0% | 0.0% | 25.0% |
| Obuasi | Count | 50 | 0 | 50 |
| | % within Area | 100.0% | 0.0% | 100.0% |
| | % of Total | 25.0% | 0.0% | 25.0% |
| Kassena-Nankana East | Count | 40 | 10 | 50 |
| | % within Area | 80.0% | 20.0% | 100.0% |
| | % of Total | 20.0% | 5.0% | 25.0% |
| **Total** | Count | **177** | **23** | **200** |
| | % within Area | 88.5% | 11.5% | 100.0% |
| | % of Total | **88.5%** | **11.5%** | **100.0%** |

Source: Field data, 2021

Figure 7-2 shows the proximity of healthcare facilities to participants in each district. Most respondents (56.5%) confirmed that healthcare facilities are close to where they stay, whilst 43.5% of participants indicated otherwise. District-level results show that in Kassena-Nankana East, 52% of the participants responded that healthcare facilities are not close to where they stay, whilst 48% answered that they remain close to healthcare facilities. In Obuasi, while 68% responded 'yes' to health care facilities close to their residence, 32% responded 'No'. Although all participants indicated that healthcare facilities are easily accessible in the Ada West district, the majority (56%) answered that they are not close to where they stay, whilst 44% stated otherwise. Finally, in the Mpohor district, 66% of the participants revealed that healthcare facilities are close to where they stay, whilst 34% responded that they do not stay close to healthcare facilities.

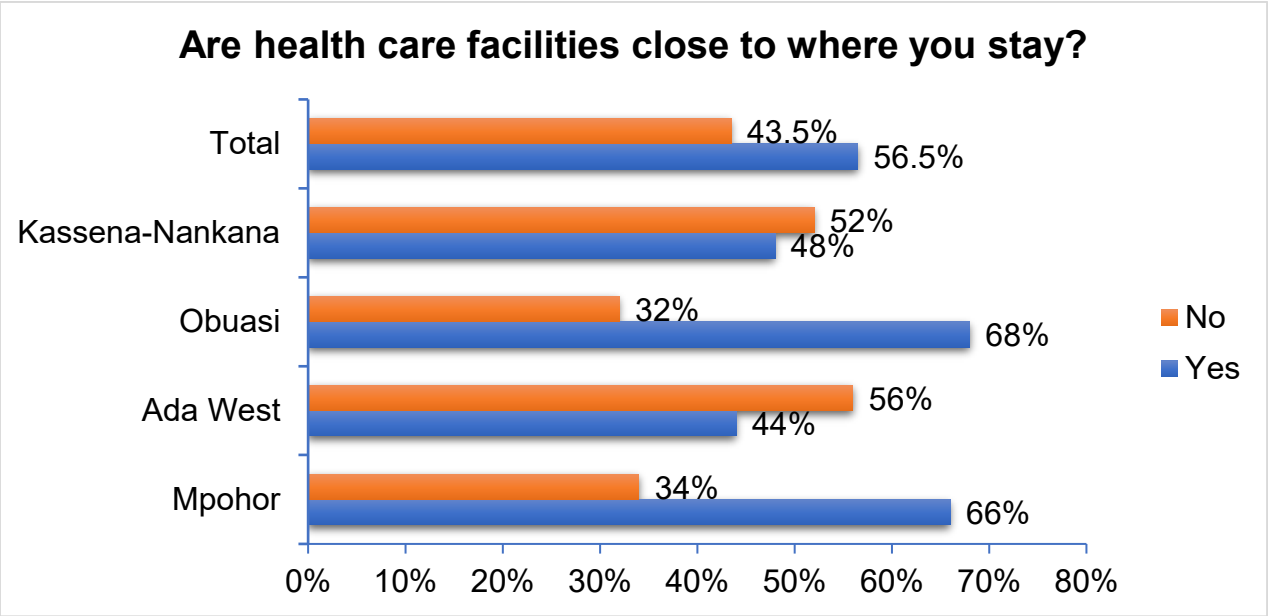


Figure 7-2: Proximity of health facilities to residence
Source: Field data, 2022

The study further examined the time spent getting to a health facility for treatment. With this, 52% of respondents 52% spend more than 10 minutes to get to the nearest healthcare facility. Of this, 33% spend between 11 and 20 minutes, 17.5% commute between 21 and 30 minutes, and 1.5% spend more than 30 minutes to get to the nearest health facility. However, 48% spend no more than 10 minutes to get to the closest health facility. The minimum time is 5 minutes, whilst the maximum 35 minutes. The mean time spent to get to a health facility is 14.92 minutes (Table 7-8).

Table 7-8: Time and amount spent to get to the nearest health facility

| Variables | Response | Frequency (N=200) | Min | Max | Mean | Std |
|---|---|---|---|---|---|---|
| How long (in minutes) does it take for you to get to the closest health facility? | 1 – 10 | 96(48%) | 5 | 35 | 14.92 | 8.17 |
| | 11 – 20 | 66(33%) | | | | |
| | 21 – 30 | 35(17.5%) | | | | |
| | Above 30 | 3(1.5%) | | | | |
| How much do you spend to get to the closest health facility? (In cedis) | *0* | 46(23%) | 0 | 20 | 6.10 | 4.82 |
| | *1 – 5* | 61(30.5%) | | | | |
| | *6 - 10* | 63(31.5%) | | | | |
| | *11 - 15* | 23(11.5%) | | | | |
| | *Above 15* | 7(3.5%) | | | | |

Source: Field data, 2019

Concerning the amount spent by participants to get to the closest health facility, most of the respondents (53.5%) at the time of the study spent no more than ¢5 on transportation to the nearest health facility. 46.5% of the participants spend more than ¢5 to get to the closest health facility. The minimum amount was 0; some respondents indicated not spending money since they could walk to the nearest health facility. The highest amount spent was ¢20, while the mean was ¢6.10.

#### 7.2.4.2 Affordability of Malaria Drugs

Regarding malaria treatment, ACTs are nationally approved medicines based on the anti-malaria Policy. The specific ACTs accepted for the treatment of malaria are artesunate-amodiaquine (AS-AQ), and artemether-lumefantrine (A-L), which are used for first-line treatment, and dihydroartemisinin-piperaquine (DHAP) used as the second line of treatment for uncomplicated malaria.

Opinions of the mothers of children U5 were sought on the affordability of these malaria drugs across the various districts. The results show that in Mpohor district, most respondents (70%) deemed the drugs unaffordable and relatively expensive, whilst 30% deemed the drugs affordable (Figure 7-3).

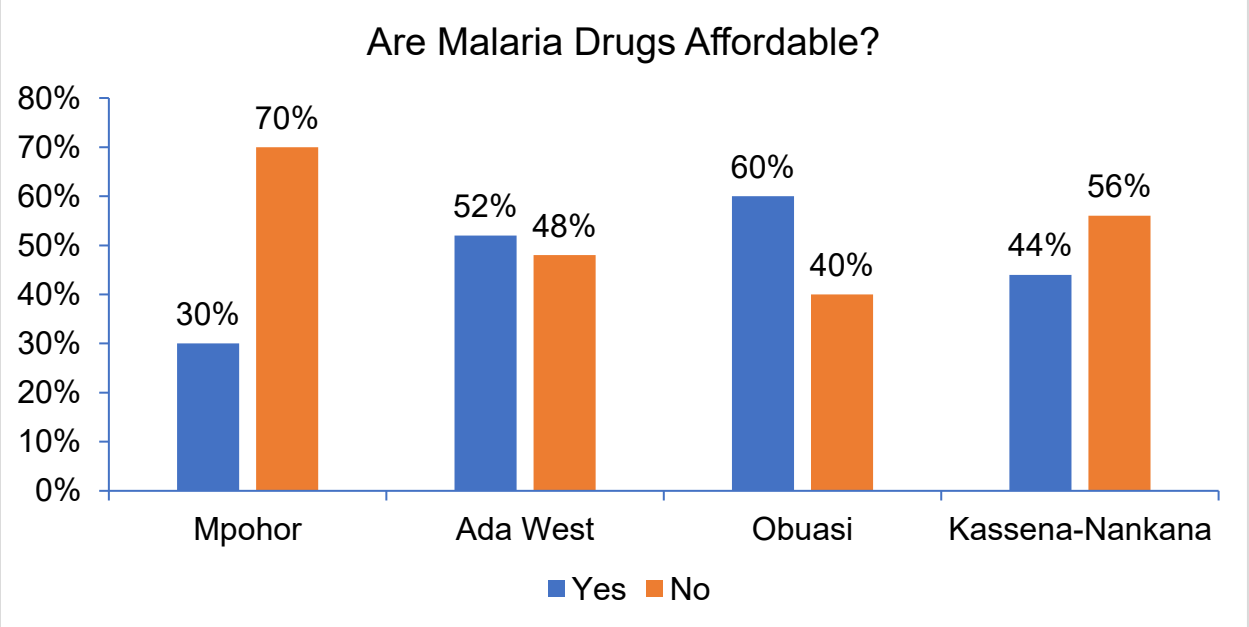


Figure 7-3: Affordability of malaria drugs
Source: Field data, 2022

In Ada West, 52% responded that malaria drugs are affordable, whilst 48% indicated otherwise. In Obuasi, whilst 60% regarded malaria drugs as affordable, 40% thought the drugs were not affordable and thereby expensive. Conversely, in Kassena-Nankana East, 56% responded that malaria drugs are not cheap, while 44% deemed them reasonable (Figure 7-3). The foregoing suggests that relatively participants in Mpohor and Kassena-Nankana East consider malaria drugs expensive compared to Obuasi and Ada West.

#### 7.2.4.3 Availability of Health Care Personnel and Facilities for Malaria Treatment

Concerning the availability of health care personnel in the health facilities, 84% of respondents 84% disagreed that health centres in their area have adequate skilled health personnel. Only 12% of the respondents admitted that there are sufficient qualified health personnel in health facilities in their area. 4% of the respondents were, however, indifferent. The mean of 2.02 implies that respondents largely disagreed that health centres in their area have adequate skilled health personnel (Table 7-9).

Table 7-9: Availability of adequate health care personnel and facilities for malaria treatment

| Variables | Response | Frequency (N=200) | % | Mean | Std |
|---|---|---|---|---|---|
| Health centre in my area has adequate skilled health personnel | *Strongly disagree* | 53 | 26.5 | 2.02 | 0.888 |
| | *Disagree* | 115 | 57.5 | | |
| | *Neutral* | 8 | 4 | | |
| | *Agree* | 24 | 12 | | |
| | *Strongly agree* | - | - | | |
| Health centre in my area has adequate facilities and equipment | *Strongly disagree* | 67 | 33.5 | 1.72 | 0.553 |
| | *Disagree* | 123 | 61.5 | | |
| | *Neutral* | 10 | 5 | | |
| | *Agree* | - | - | | |
| | *Strongly agree* | - | - | | |

Source: Field data, 2022

On the availability of adequate facilities and equipment in health centres, 95% of the participants responded that healthcare centres in their area do not have adequate facilities and equipment. The remaining 5% were indifferent (Table 7-9).

#### 7.2.4.4 Quality of Malaria Treatment

Another significant principle of functioning health system governance is how health systems respond to society's health needs and community satisfaction with health delivery. The participants were asked to express their opinion on their satisfaction with the quality of malaria treatment they receive for their children to determine the extent to which health delivery meets the local needs with specific reference to the eradication of malaria among U5. Regarding the efficacy of malaria drugs (Figure 7.4), 90% of the respondents identified effective antimalarial drugs for treating their children. 10% responded that the drugs are ineffective in treating malaria in their children.

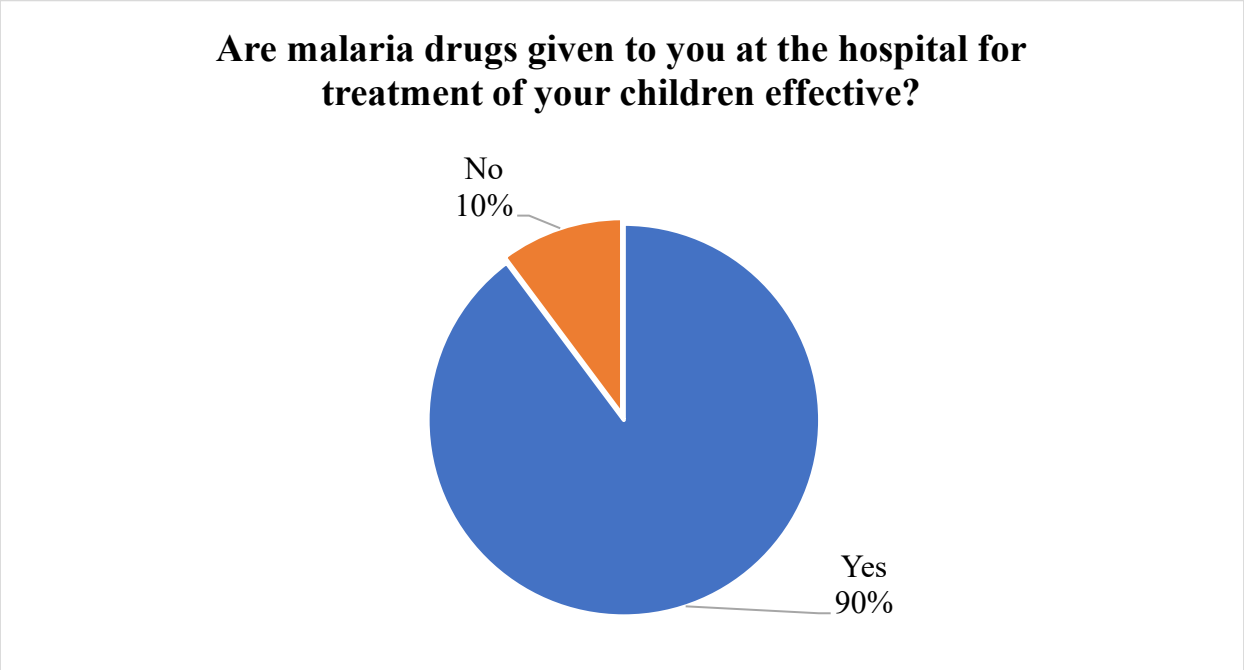


Figure 7-4: Efficacy of malaria drugs
Source: Field data, 2022

The study further revealed that most mothers (58%) indicated satisfaction with malaria treatment in the four districts, whilst 43% indicated otherwise. In Obuasi, 80% said they were satisfied with malaria treatment for their children in health facilities, whilst 20% responded otherwise (Figure 7-4). This suggests that health delivery meets the needs of the local people of Obuasi municipality more than the other three districts.

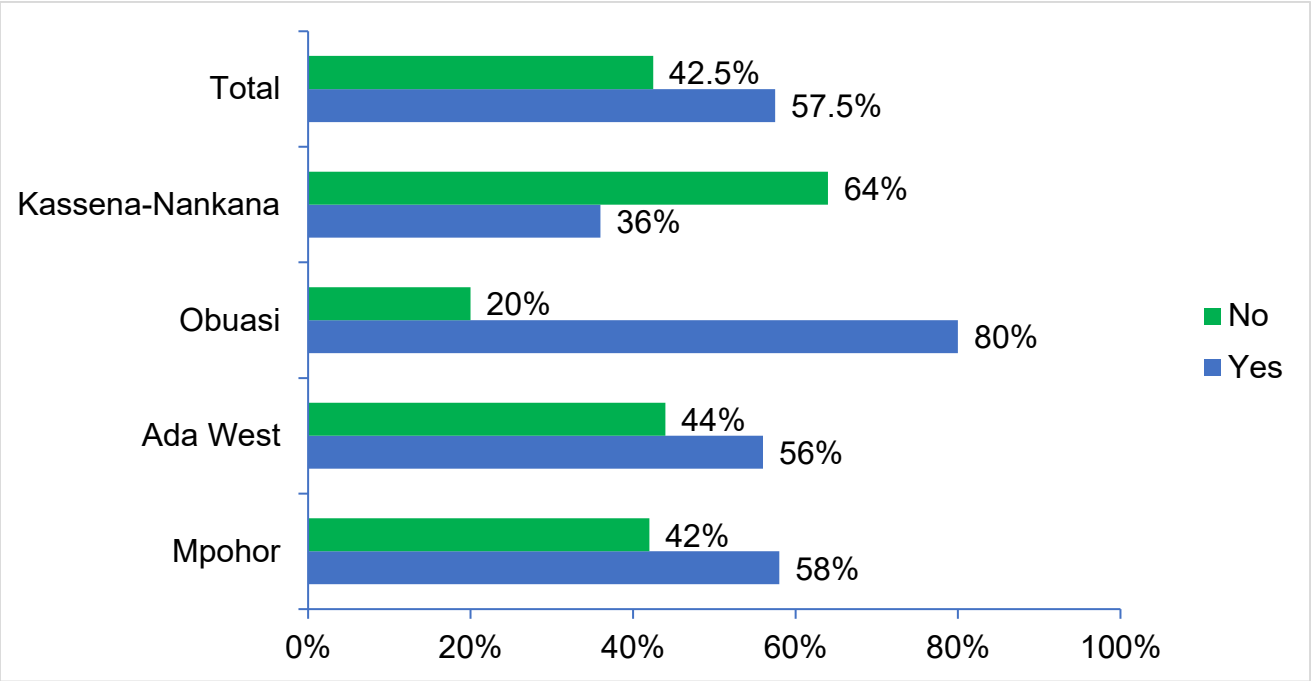


Figure 7-5: Satisfaction with malaria treatment for children U5
Source: Field data, 2022

In the Mpohor district, 58% of the mothers responded that they were satisfied with malaria treatment for their children, while 42% indicated dissatisfaction. For the Ada West district, 56% were satisfied. In comparison, 44% indicated otherwise. The Kassena-Nankana East district showed that mothers with U5 are essentially unsatisfied with malaria treatment, with 64% responding as unsatisfied as opposed to 36%, who indicated dissatisfaction.

## 7.3 Health Governance Structure, Power Relations and Actors' Participation in Health Policy Formulation and Implementation

The study examined the health governance structure and how it affects policy formulation and implementation at the district and sub-district levels. As shown in Chapter 4 (Subchapter 4.6.4), the health governance of structure is organised in line with the decentralised government system, which comprises several institutions and actors playing varying roles and functions at the central (national), regional, and local levels.

Table 7-10: Summary of National Health Policies implemented and policy actors involvement to addressing Maternal and childhood healthcare in Ghana from 1997 to 2008

| National Health policy | Precipitating factors / | Actors/ Interest/ force/context | Activities/evidence/ narrative | Out- come |
|---|---|---|---|---|
| Integrated Management of Childhood Illness (IMCI) | Worsening national maternal health indicators (1997) | Political power of government, President – Ft. L Jerry John Rawlings | Health sector full cost recovery under structural adjustment Programme. Low maternal supervised delivery in health facilities, | Existing maternal user fee exemption policy narrowed to first 4 antenatal visits in government health facilities' |
| Safe Motherhood Programme (SMP) – 2000 Focused Antenatal Care (FANC)- 2002, Ghana poverty reduction Strategy II (GPRS) - 2003 | Ghana poverty Reduction Strategy and Heavily Indebted Poor Countries grant (2003) | Political power of government of President: John Agyekum Kufuor Multilateral agency: WB group and IMF, Health care service expertise and administrative power of MOH | Worsening poverty indicators such as maternal mortality rate, The positive correlation between poverty and health Outcomes. Inequitable national poverty levels. Improve poverty related health indicators. | Maternal user fee exemption policy linked to poverty reduction strategy priorities (PRSP). Maternal user fee exemption policy expanded to include delivery and postnatal services and narrowed to four (4) deprived regions Northern, Upper-West and East, and Central Regions. |
| User Fees Exemption for Delivery Care (UFEDC) – 2005 Community-Based Health Planning and Services (CHPS) - adopted nationwide in 2005 | Worsening national maternal health indicators (2005) | Minister of Health: Multilateral and bilateral agencies: Technical expertise and financial power of the Donors, Health care service expertise, administrative power of MOH. Context: Election year | Improve maternal health indicators, Poverty and poor maternal health outcome exist in non-deprived regions, High national maternal mortality rate 503 per 100,000b live birth (MDG, Action Plan). National poverty reduction strategy. | Maternal user fee exemption policy linked to PRSP. Maternal (antenatal, delivery and postnatal) user fee exemption policy expanded to all ten regions in government, private and mission health facilities' |
| National Health Insurance Scheme (NHIS) premium exemption for all pregnant women in Ghana' | Maternal health declared a national emergency | MOH Bureaucrats, President – John Agyekum Kufuor, Political and administrative power of the Minister and the ministry. Context: Election year | Improve maternal health indicators and consolidate political gains, Decreased proportion of maternal supervised deliveries in healthcare facilities from 44.5 % in 2006 to 35.1 % in 2007 | Free maternal (antenatal, delivery and postnatal) care directive |

Source: Adapted from MOH (2015); NHIA (2015); Koduah et al. (2015)

The study provides findings on the interactions among these institutions and actors with a specific focus on the roles of policymakers, primary healthcare actors and other actors such as private health providers, international agencies and donors, and mothers with U5 concerning the formulation and implementation of malaria health policies (Table 7-10). Moreover, the power relations among the policymakers and the extent of participation of the actors in the health policy formulation and implementation are examined.

### 7.3.1 Actors and Their Roles in the Health Policy Formulation and Implementation to Eradicate Malaria among U5

#### 7.3.1.1 Policy Makers: National, Regional and District Level

The study discovered from interviews with key informants that the Minister of Health is the ultimate or principal influencer in policy formulation in the health sector across the national, regional and district levels. The Regional Health Director was identified as the one who strongly influences regional and district-level decision-making strongly. The District Health Director has oversight responsibility in the prioritisation of health interventions, as well as implementing health policies and strategies developed at the national level. In implementing these policies and strategies, the District Health Director must adapt them to local conditions. Across all four districts, the District Assemblies were found to play little to no role in formulating health policies.

#### 7.3.1.2 Power Relations among Policy Makers

To fully understand the interplay among the key state decision-makers, it was essential to examine the power dynamics that influence policy formulation and implementation across the national, regional and district levels and among district-level stakeholders. Two forms of power dynamics were found among state actors shaping decision-making and policy formulation at the national, regional and district levels. Based on Arts and Van Tatenhove's (2004) power framework, these two forms of power are dispositional and relational. Arts and Tatenhove (2004) conceptualise dispositional power as the exercise of the power of agents shaped by organisational rules and resources. Relational governance, conversely, is "power based on a zero-sum game where certain actors have power at the expense of others, but it can also be embodied as joint practices of actors resulting in certain outcomes through collective bargaining" (Susan et al., 2021).

#### 7.3.1.3 Dispositional Power Dynamics Between Policy Makers

The study found that the health sector's hierarchical structure is highly influenced by the dispositional power exercised between national, regional, and levels. Some respondents from the district level across the four districts admitted that due to the existing hierarchical structure, district-level decision-making power resides in the Minister of Health at the national level instead

of the district-level health directorates. Besides, the GHS also wields power over the district health directorates regarding policy formulation and implementation. Some participants recounted that despite the decentralised system of devolution, which affords the District Health Directorates some autonomy and influence over decision-making and policy implementation at the district level, that is not the reality, as policy formulation and implementation are largely top-down. Thus, the District Health Directors have a minimal say in policy formulation and implementation and always seek approval from Regional Health Directors. The latter also cannot make decisions without resorting to the Director-General of the GHS at the national level. The Minister of Health also highly influences the decisions of the GHS. In a nutshell, policy formulation and implementation at the district level are highly influenced by higher authorities in the health governance structure.

*"Ideally, looking at the form of decentralisation we are implementing, the district health directorates should have the autonomy and power to initiate their own policies and interventions style that works at their locality, but that has not been the case. Everything comes from above, from the Ministry to the GHS and Regional Health Directorates. So, the district directorates accept anything pushed from the top. We are told what to do and cannot do anything without directions and approval from the top."* [DHD, Ada West]

Some study participants described the hierarchical structure that determines power relations between the MoH, GHS, Regional Health and District Health Directorates to be rigid and not yielding to some flexibility. They indicated that though the structure provides a channel of reporting, it stifles local initiatives to the extent that programmes of Regional Health Directorates supersede that of the district level.

*"I think our structure is very rigid and does not give room for some discretion. You see how you needed a letter of approval from the Regional Health Directorate before I could grant you this interview. That is the same thing that applies to policy formulation…If the Regional Health Directorate needs you to attend a programme and at the same time you have an equally important programme in your district, you need to forego yours and attend that of the Regional Directorate"* [DHD, Obuasi]

A consequence of this hierarchical power has been the limited decision space at the disposal of DHDs. The district health directorates have become mere implementers of policies without the power to alter or modify national policies to meet local conditions. In most cases, national policies do not include inputs from the districts. The consequence is that policies may fail because they do not consider local context and conditions.

*"A number of the policies are made at the national level and therefore fail to meet the conditions and needs of the districts because planning is done for the districts instead of with the districts. The top-down nature of decision-making is a challenge to the success of the health policies".* [MCD, Obuasi]

Dispositional power was also found to be at play across the national, regional and district levels based on the allocation of resources. …The study identified that district health directorates relied significantly on funding and other resources from regional and national directorates. As a result, there is a more vital link between district directorates and the upper levels than collaboration with the district assemblies. This reinforces the dispositional power the upper levels have over the district directorates. The district directorates do not generate revenue and depend heavily on inflows, upper-level budget allocations, and donor support. Study participants further admitted that the heavy reliance on funding and other resources tends to affect the successful implementation of health programmes and interventions when there is a delay in releasing funds and other resources.

*"Regarding funding and other resources, we depend largely on the regional and national level...This contributes to the control they have over our operations. As a result, when there is a delay in the release of funds, it affects our operations"* [DHD, Kassena-Nankana]

The district assemblies provided minimal support to the district health directorates. This support does not give the assemblies power over the directorates. Ideally, the district assembly, the highest political and administrative body at the local level, should have overall authority over decentralised units, but that tends not to be the case. The district health directorates mainly report directly to the regional and national levels of health authorities. The district assembly mainly collaborates with district health directorates to provide financial and other assistance, such as building CHPS facilities. According to officials of the district assemblies interviewed, the assembly is not mandated to provide financial and other support to the directorates. However, as

the district's highest political and administrative body, the assembly deems it prudent to make some budgetary for health services.

*"Per the arrangement, the district assemblies are not directly responsible for providing resources to the district health directorates. However, being responsible for the overall development of the district is only fit to support the health directorate in its activities. So, we make some allocations for them when preparing our budget. For instance, the assembly is building some CHPS in the municipality."* [MCD, Obuasi]

*"Health-related issues in the assembly are channelled to the health directorate. Notwithstanding, the assembly supports them occasionally, and I continually recommend that they should do it more often."* [Chief, Mpohor]

#### 7.3.1.4 Relational Power and Political Dynamics among Policy Makers

The study also found relational power tendencies between the health directorates at the district, regional and national levels and political actors. Responses from study participants revealed that the relationship between political and administrative actors is complicated due to these actors' diverging interests. Political actors are mainly focused on votes and how to please their voters and are only interested in the effect of policy decisions on their party remaining in power. However, health administrators and experts (some NGO and academia), on the other hand, are mainly interested in how policies can be implemented to improve people's health outcomes. Some respondents also identified that district-level politicians could influence health policy implementation when they perceive positive consequences to be used to their advantage during political campaigns. They are eager and willing to provide the necessary support to ensure the success of such policies.

*"We all know how politicians in this country behave. They are only interested in getting votes and winning elections and so are ready to support any intervention that will make them gain popularity and votes from the people to keep them in power"* [DHD, Mpohor]

Conversely, they are not eager to support health-related activities of other political parties (opposition parties) because such actions may undermine their political campaigns and programmes. As a result, the health policies and projects initiated by the previous political party

in government are discontinued by a new party that assumes power. They indicated this is visible across the country with several abandoned health projects, just as in other sectors.

*"This is an issue I am utterly concerned about, and I get heartbroken whenever I see or hear of these. Indeed, it is happening. A change in government should not be the end of policies and projects. After being enstooled as a chief, I have made sure to continue and upgrade all relevant projects my predecessors began, and this can be done at all levels, else we risk retrogressing"* [Chief, Mophor]

The study further found that health administrators across the national, regional and district levels must ensure that health policies align with the interests and priorities of political actors or lose support from politicians who can broadly impede the successful implementation of these health policies.

*"Politicians at the national level have significant influence in the funding allocations and are ready to commit the needed funding to implement health policies that align with their priorities. So, health decision-makers are always forced to formulate policies that are aligned with the political interests and also support health policies that are politically initiated" [DHD, Kassena-Nankana]*

Another participant also recounted:

*"The political issue should always be the starting point before any policy is formulated. That is the need to make sure that it is in sync with the manifesto or agenda of the ruling government; otherwise, it will never see the light of day" [Official, GHS]*

#### 7.3.1.5 Primary Health Care Actors

Ghana's primary health care system plays a significant role in health delivery for the people of Ghana, especially in rural areas. Primary health care mainly involves curative, preventive, promotive and rehabilitative health services. The primary health care system in Ghana is organised along with a three-tier system: district level (district hospitals), sub-district level (health centres), and community level (community-based health planning and services). The district level of the Primary health care system, which is the highest of the tier, caters for providing health care services through the district hospitals. In the district health system, the district hospital is the first referral hospital and serves an average population of 100,000 to

200,000 with about 50 to 60 beds (Armah & Kicha, 2020). The district hospitals tend to have more competent and skilled health personnel than the other tiers. They provide treatment techniques such as laboratory and diagnostic services, surgery, and outpatient and in-patient services, which tend to be absent at sub-district and community levels. A range of clinical staff includes (but is not limited to) medical doctors, physician assistants, nurses, midwives, laboratory technicians, radiographers, dentists, physiotherapists, opticians, and clinical psychologists.

The sub-district level of the primary health care system comprises health centres. Clients are the first point of contact before proceeding to the district hospital. Health centres serve an average population of 20,000 and provide preventive and curative services for children and adults and other minor surgical services. They also engage in community outreach services in education on preventing and eradicating infectious diseases and mass vaccine or drug administration. They usually refer clients with complicated or severe health conditions to district hospitals or higher health facilities such as Regional or Teaching hospitals. Health centres are headed by a medical assistant assisted by clinical staff such as nurses, midwives, public health, nutrition, environmental personnel and laboratory personnel.

The community level of the primary health care system comprises community-based health planning and services (CHPS). The establishment of the CHPS is to bring health care closer to people to ensure easy access to health care and reduce inequalities in health care delivery. It provides various forms of health care, including antenatal care, post-natal care, emergency delivery, and other clinical services. In addition, the CHPS engage in house-to-house visits to educate and sensitize individuals at the community level as well as through radio stations, churches, mosques, schools, and public gatherings on various infectious diseases as well as preventive activities and also undertake immunisation activities in collaboration with district and sub-district health facilities. The CHPS is staffed mainly by community health nurses, midwives, and volunteers.

#### 7.3.1.6 Private Health Care Providers

Private healthcare providers are also key in healthcare delivery across the four districts. They complement public health facilities in the provision of primary health care. The private healthcare facilities were private hospitals, clinics, pharmacies, or drug stores. The study discovered that

Ada West had no private hospital among the four districts. However, several private pharmacies and chemical stores were cut across the districts. These stores mainly provide over-the-counter drugs to individuals at a cost, either with or without a prescription from a healthcare professional. Some managers of pharmacies and drug stores interviewed revealed that malaria drugs are amongst the most patronised medications due to the prevalence of sickness in the district. Amongst the most purchased drugs were Lonart and Lufart, which are Artemether and Lumefantrine tablets for adults and children. Suspension medicines such as Artibase suspension are also sold for children under five. It was revealed that some people preferred local herbal medication to treat malaria. Apart from selling medicines, some pharmacy attendants indicated providing education and sensitisation to their customers, especially in adopting malaria prevention practices to protect themselves and their children.

*"...I can say that malaria drugs are generally purchased rapidly, largely due to the rate at which people contract the sickness. I believe this is not a rare phenomenon in our part of the world."* [Pharmacy Shop Attendant, Kassena-Nankana East]

*"For malaria, we usually prescribe drugs such as Lufart, and Lonart, which are Arthemether tablets for adults and Artibase suspension for children under five. In addition, we have herbal medicines such as Taabea Herbal mixture and Time herbal mixture that some people prefer to treat malaria"* [Pharmacy Shop Attendant, Mpohor]

*"The malaria drugs are effective, but concerning why malaria persists, I think the issue should be tackled from the 'prevention' point of view and not administering drugs. In this community, people are given mosquito nets to prevent malaria. However, they lack understanding of the whole situation and should be more educated. I, for instance, try to educate my patients/clients to adopt two specific methods in addition to using the nets. Firstly, they should spray their rooms with mosquito insecticides before sleeping in the nets and avoid sitting out for a long, especially in the evening, since they can be bitten before sleeping in these nets. Despite these, only a few accept and practice these methods, with the majority adamant about changing."* [Pharmacy Manager, Ada West]

### 7.3.2 Role of Other Actors

#### 7.3.2.1 International Partners and Donor Agencies

The study identified that international and donor agencies play a significant role in Ghana's healthcare development and financing at the national and district levels. Several international organisations and partners have supported Ghana in tackling child health sicknesses and diseases. However, two key international agencies that have contributed significantly to malaria prevention and treatment are PMI and Global Fund. These agencies have provided technical and financial assistance to the NMCP in formulating and implementing interventions to eradicate malaria in the country. The study discovered that PMI and Global Fund had supported the procurement of ITNs for mass distribution and continuous distribution, respectively. Both institutions have also supported the procurement and distribution of other malaria supplies, such as drugs for treating malaria, insecticides for IRS and malaria RDTs. PMI and Global Fund also support research on anti-malarial efficacy, entomological surveillance and evaluation activities, and national malaria household surveys (U.S. President's Malaria Initiative (PMI), 2022).

*"Over the years, we have received much support from international partners and agencies to support us in the fight against malaria in the country. Though there are several supporting agencies, I think in the fight against malaria, US PMI and Global Fund have been beneficial and instrumental in terms of financial support and technical assistance. Particularly in the mass and continuous distribution of ITNs across the country, the IRS programmes, provision of RDTs, malaria drugs and other activities in preventing and treating malaria."* [Programme official, NMCP]

Data obtained (Figure 7-6) on annual funding by PMI and Global Fund in tackling malaria in Ghana indicate that between 2019 and 2021, a total of $210.6 million has been committed to the fight against malaria in the country. These comprised $87.2 million in 2019, $66.7 million in 2020, and $56.7 million in 2021. PMI spent about $83 million, while Global Fund spent $127.6 million. However, funding by these agencies is on the decline.

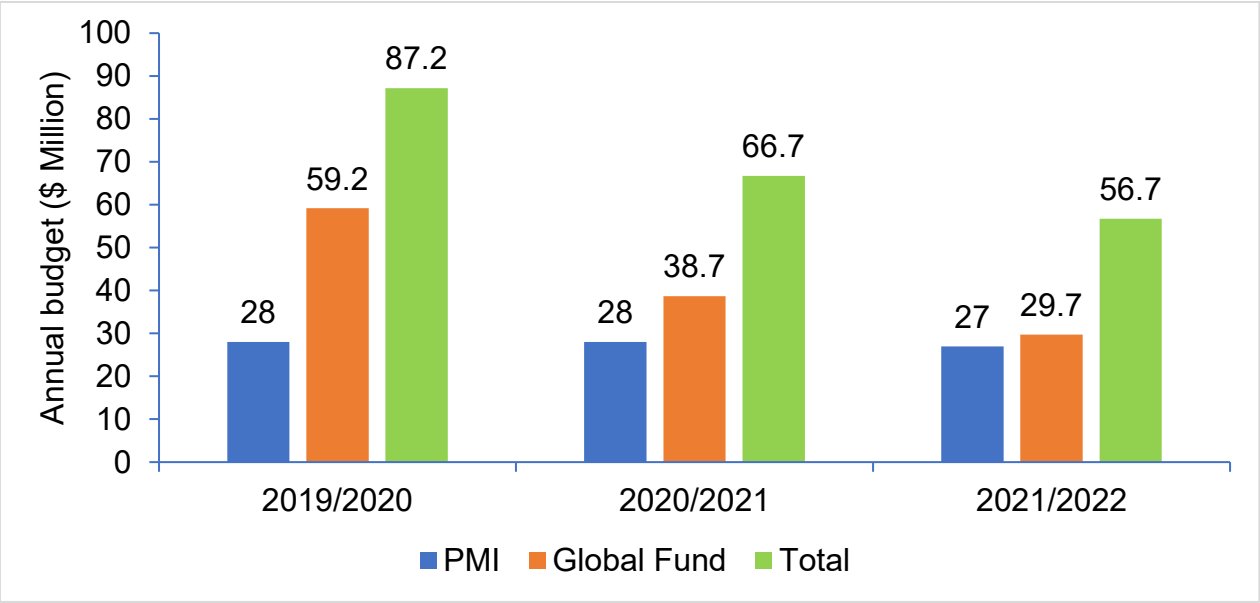


Figure 7-6: Annual budget for malaria by PMI and global fund in Ghana
Source: U.S. President's Malaria Initiative (PMI), 2022

Between 2019 and 2021, funding declined by 35% ($30.5 million). Global Fund cut funding by $29.5 million, while PMI reduced its budget by $1 million.

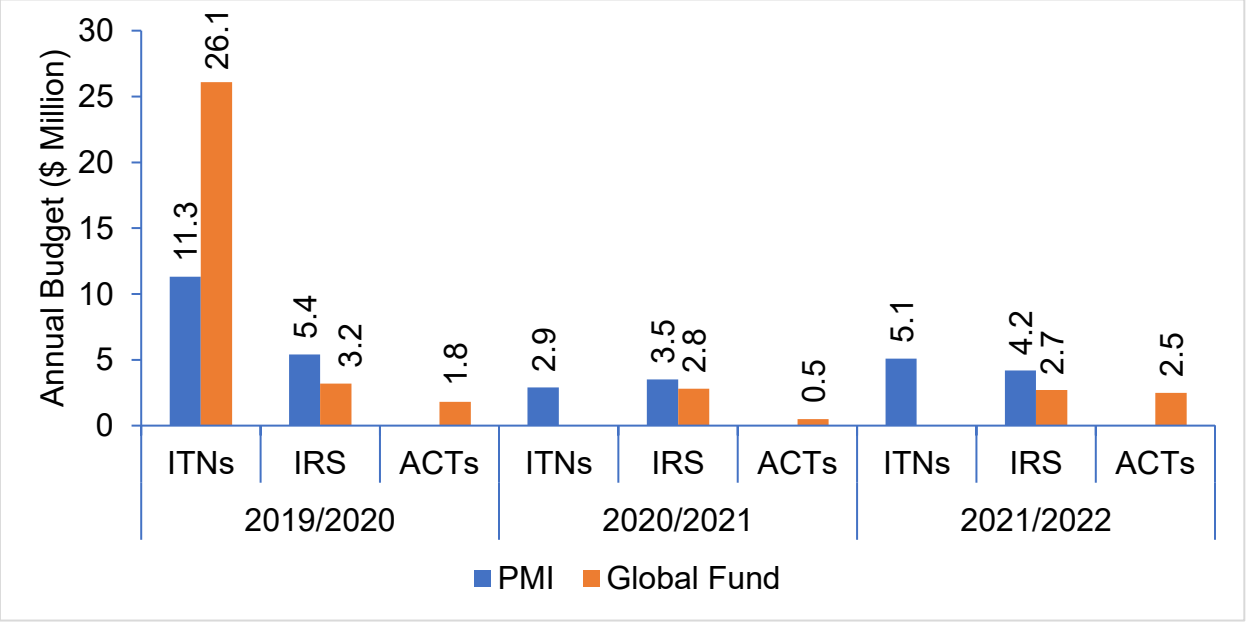


Figure 7-7: Annual budget for ITNs, IRS and ACTs
Source: U.S. President's Malaria Initiative (PMI), 2022

The decline in the funding by the PMI and Global Funding was partly attributed to the Covid-19 pandemic that distracted supply chain activities, a reduction in ITNs mass distribution conducted

every three years, and an increase in national government spending on malaria interventions. $37.4 million was spent on abundance and continuous distribution by the two agencies in 2019 ($26.1 million by Global Fund and $11.3 million by PMI), $2.9 million in 2020 and $5.1 million in 2021 by PMI with no contribution by Global Fund. Regarding the IRS, PMI contributed $13.1 million between 2019 and 2021, whilst $8.7 million was spent by the Global Fund. Regarding ACTs, it was discovered that only the Global Fund had supported the procurement of ACTs between 2019 and 2021, spending about $4.8 million. It was found that PMI had stopped procuring ACTs in 2018 (Figure 7-7). The government of Ghana and the Global Fund now cover ACTs.

#### 7.3.2.2 Role of Mothers

Mothers are key actors in implementing malaria policies and have a significant role in preventing and treating malaria for children U5. Mothers' responsibility is to seek health care for their children. Therefore, health-seeking behaviour among the participants was examined. As shown in Table 7-11, the study results revealed that 72% of the mothers indicated always seeking health care for their children at the hospital whenever they are sick, while 28% responded otherwise.

Table 7-11: Mothers' utilisation of health care for their children U5

| Statement | Response | Frequency (N=200) | Percent (%) |
|---|---|---|---|
| **Do you always seek health care from the hospital when your children are sick?** | *Yes* | 144 | 72 |
| | *No* | 56 | 28 |
| **Did you seek malaria treatment from a health facility?** | *Yes* | 200 | 100 |
| | *No* | - | - |
| **If yes, where did you seek health care?** | *District hospital* | 32 | 16 |
| | *Health centre* | 86 | 43 |
| | *Polyclinic* | 26 | 13 |
| | *Private Hospital/Clinic* | 12 | 6 |
| | *Drug store* | 44 | 22 |

Source: Field data, 2022

However, concerning malaria treatment, all the mothers responded that they sought treatment from a health facility for their children. The study results showed that participants resorted to different health facilities for malaria treatment for their children. 43% sought health care from a health centre, 22% from a drug store, 16% from a district hospital, 13% from a polyclinic, and 6% from a private hospital or clinic (Table 7-11).

### 7.3.3 Actors' Participation and Consensus Orientation in Policy Formulation and Implementation

Another principle to evaluate health system governance is the extent of participation and consensus among all relevant stakeholders in formulating and implementing health policy. A functioning health system must increase the integration and participation of all state and non-state actors in developing and implementing the procedures. The study examined the extent to which all relevant stakeholders have been involved in implementing child health policies across the four districts.

The study examined the extent to which non-state actors such as traditional leaders, religious leaders and private healthcare providers participate and are involved in health policy formulation and implementation across the districts.

The traditional leaders from the four districts interviewed indicated their non-involvement in the policy formulation, especially in eradicating malaria among U5 children. According to them, their inputs are not considered during policy formulation, mainly at the national level.

*"I have never been invited to any district, regional or national meeting to participate in health policy formulation for my district. It has never happened since I became chief. Maybe other chiefs are invited but not me" [Chief, Obuasi].*

Another participant also commented:

*"I am unaware of any health policy formulation exercise I participated in. I know when the district health directorate wants to implement or undertake an exercise such as vaccination or immunisation. They usually contact me to encourage my community members to avail themselves of that exercise" [Chief, Ada West]*

However, they indicated they played a minimal role in implementing policies to eradicate malaria in their districts, especially when providing information to the community members to change

some negative behaviours contributing to malaria prevalence. According to them, they only get to know the intentions and programmes of district health directorates at the implementation stage.

*"The district (directorate on health) had put together a committee to which I was invited. We had two meetings, and currently, I cannot tell if we are still active. Our focus was not only on malaria but other diseases as well. I have also served on other committees, such as the regional committee on AIDS. I am only looking at getting the intended results that can help the community." [Chief, Mpohor]*

Another traditional leader also had this to say:

*"I remember I was contacted to inform my people about a vaccination programme for children that the district health directorate was undertaking, and I was expected to encourage the people to avail themselves and not to fear any consequences of the exercise to their children." [Chief, Kassena-Nankana]*

Another Chief also commented:

*"The district health director contacted me to help distribute mosquito nets to the people. So, they brought some of the nets to my house to keep them before the day of distribution, and I helped announce and organise the women to receive the mosquito nets" [Chief, Ada West]*

The traditional leaders interviewed admitted having little to no influence in formulating and implementing health policies. Some leaders explained that their lack of knowledge and expertise on health-related issues might account for their non-involvement in policy formulation. They can only provide the necessary support to assist the district health directorates implement their activities.

*"Policy formulation on health issues may require some level of knowledge and expertise on health, which honestly, I do not have, so maybe that is why I am not invited into health decision-making. But it is not out of place to involve chiefs in health decision-making irrespective of their health knowledge. Notwithstanding whatever assistance they need, when they come to me, I do my best to assist them in their activities" [Chief, Kassena-Nankana].*

Concerning the role played by the traditional leaders in the fight against malaria, the study gathered that the chiefs undertake regular community clean-up exercises to improve the

sanitation of their areas. This was deemed necessary because poor sanitation was the major cause of malaria in the districts.

*"Formerly, malaria cases in this community were rare; we barely recorded such cases, but with time and the behavioural patterns of people, the cases are increasing. People are throwing rubbish indiscriminately, and these are major breeding places for mosquitoes. They move straight into our homes from their breeding places… I instituted a committee organizing communal labour to clean the community periodically in this community. They usually go round from time to time, and when they realize a place is dirty or an incidence of poor sanitation, they rally the community members and get it cleaned." [Chief, Mpohor]*

Concerning the participation of religious leaders in the formulation and implementation of health policies, study participants across the districts responded that not being involved in policy formulation and implementation of health policies. The district assemblies, however, periodically involve and engage religious leaders in their activities. However, it was found that the participation of religious leaders was mainly ceremonial and did not have the voice and power to effect changes to the decisions of the district assemblies.

*"With regards to decision-making, we are often overlooked. To us, this is a major challenge. We recognize that the district assembly is the political head of this community, but as a major religious body here, we deem it right to be involved holistically in decisions that concern the community."[Chief Imam, Ada West]*

*"The district health directorate has never involved me in decision-making on any issue. But what I can say is that of the district assembly where we are invited and engaged in some events which is merely a ceremonial role we play, and we do not have a strong voice or influence over the decisions of the assembly" [Catholic Bishop, Mpohor]*

The study examined the extent of their involvement and participation in policy formulation and implementation at the district level. The study found that private healthcare providers spend more time formulating and implementing policy at the district level.

*"Yes, we participated in policy decisions and implementation by the district directorate. We have an association, and this facility is a member; we hold meetings regularly. We are also involved in decision-making and policy formulation in the community. Most health workers here are not*

*indigenes/natives of the community and sometimes face a language barrier. Therefore, the involvement of their superiors in decision making becomes one way to make implementing policies easier, specifically with communication of policies and decisions." [Private health care Provider, Mpohor]*

*"We are largely involved and participate in decision-making by the district health directorates. Because we are one of the biggest private hospitals in the municipality, we play a significant role in health delivery, so the district assembly, as well as the district health directorate, also invites us to partake in decision making and implementation of policies" [Matron St Jude Hospital, Obuasi]*

## 7.4 Institutional and Policy Challenges Inhibiting Effective Implementation of Health Policies toward the Eradication of Malaria among U5

The final objective of the study was to understand the institutional and policy challenges inhibiting the effective implementation of health policies toward eradicating malaria among U5. Across the four districts, it was found that the various primary health care facilities at the district, sub-district and community levels provide malaria treatment for children U5. However, interviews with healthcare personnel indicated that health facilities are challenged to provide quality healthcare in several ways.

### 7.4.1 Lack of Adequate Healthcare Workers

Firstly, it was identified that the facilities lacked adequate physicians and nurses. This was attributed to the reluctance of health workers to accept postings to these districts due to the absence of decent accommodation, potable water, and stable power supply in some communities in the neighbourhood. It was revealed that most health workers prefer to work in urban centres rather than rural districts and can lobby their way to health facilities. This has put undue pressure and workload on the few health workers in primary health care facilities. The respondents further decried the lack of consultation and involvement in decisions on the postings of health care

workers to their facilities. There was the indication of some disconnect between managers of health facilities at the district and sub-district levels and Ghana Health Service at the regional and national levels regarding postings of health care workers. Managers of the health facilities had little to no influence in posting decisions and, as a result, did not get the desired number of health workers. The participants indicated that those assigned to health facilities are often not competent due to insufficient health training.

*"As a facility, we are challenged regarding the personnel we need to operate effectively. The number of personnel we have currently is not enough to make us meet the needs of our clients. When it comes to postings, we do not have any say. There is no consultation to enable us to indicate the number and kind of personnel we need. Our requests are not met even in situations where communication to the Ghana Health Service national directorate through the regional directorates."*[Medical Officer, Kassena-Nankana]

*"We have a staff shortage here, especially general nurses, because some refuse postings to this facility and other facilities in the district. After seeing the working environment within which they operate coupled with the accommodation challenges, unstable electricity and water challenges, they are reluctant to work here and can change their postings to health facilities in the urban districts. The staff shortage has brought undue pressure and workload on us considering the demands of our clients".* [Matron of Nurses, Mpohor]

*"Across the country, you will find that most public health care facilities do not have adequate staff. Health care workers in this facility are not enough, but the irony of the situation is that several trained personnel are just sitting home waiting to be posted.* [Nurse, Ada West]

### 7.4.2 Lack of Adequate Financial Support and Delay in Releasing Funds

Another challenge is curtailing the success of health policies identified by the study participants was the lack of adequate financial support to health institutions and the delay in releasing funds to support the implementation of policies at the district level. The district health directorates do not generate revenue but rely on budget allocations and regional funding. As a result, delays in the release of funds have affected the implementation of policies at the district level. The unreliability of the central government's financing curtails health policy implementation.

Similarly, it affects the daily operations of primary healthcare providers who rely solely on the government for financial support.

*"One of our main challenges is getting adequate funds to keep our operations moving. The support we get from the government is largely inadequate to cater for our daily operations such payment for power supply and water"[DHD, Ada West]*

*"In most cases, funding for our operations is delayed, and since we do not generate our revenue but rely heavily on budgetary allocations from the regional level, all our activities are brought to a standstill. Without adequate funds, we cannot implement policies effectively. If funding is released timely, the story would be different"[DHD, Kassena-Nankana]*

### 7.4.3 Inadequate Logistics and Medical Supplies

Thirdly, the study gathered participants' observations and responses that primary healthcare facilities lack adequate logistics and medical supplies to ensure quality health delivery. It was found that delays in restocking medical supplies and replacement of worn-out or faulty health equipment tend to affect the operations of primary healthcare facilities. Moreover, the lack of standby generators tends to hamper the constant electricity supply needed to provide health services during incessant power cuts. Although respondents commended the government on the provision of ambulances for their districts through the "one District, one Ambulance" initiative, they lamented the unsatisfactory emergency service by the Ambulance Service. According to the respondents' additional ambulances are needed to meet the many emergency cases in the districts, especially those involving children.

*"Over here, as you can see, we lack much equipment and medical supplies. I believe you have seen where records are kept and our work environment. It is never acceptable as a health facility. We hope completing the ongoing construction to convert this health centre to a polyclinic would improve conditions here."* [Matron of Nurses, Mpohor]

*"Though we are doing our best to provide quality health care for the people in the district, a major problem we face is the lack of adequate medical supplies. There is always a delay in the distribution of medical supplies, which affects the prompt delivery of service. There are instances where we run out of malaria medicines, so clients are told to buy them. They are most unhappy*

*because they believe they should get these drugs free because of the national health insurance scheme".* [Nurse, Kassena-Nankana East]

*"A major challenge we face in this facility is power supply. We do not have a standby generator, and considering the frequent power cuts, our operations are seriously affected, and people's lives are always at stake. This is something we have been crying for support for some time. We hope our pleas are granted to ensure we can deliver quality health care to people, which is their right."* [Medical Doctor, Obuasi]

### 7.4.4 Political Transitions and Influences

Study participants identified political transition as inhibiting the success of health policies. As used here, political transition implies "the transfer of political and administrative power from one group of the political elite to another within the same political party or another political party" (Ninsin, 2017:153). Study participants revealed that since 1992, political transitions have led to the redeployment and retrenchment of top public officials across the public sector, with the health sector not an exception. As such, a change in government is accompanied by new appointees across the national, regional and district levels. This phenomenon prevails in the health sector and affects the continuity of the implementation of health policies. The new leadership has a vision and policy directions based on political priorities. As a result, it supports previous policies, especially if the previous government initiated them.

*"Ghana is a highly political country, and politics cut across almost every aspect of the public sector. Every change of government comes with new appointees, and so existing policies are either suspended or halted if it is not in line with the new government's vision and political priorities" [DHD, Mpohor]*

Another key informant also commented:

*"Everything in Ghana is politicised, and with the power granted to the President by the constitution to appoint top public officials in the health sector, new appointees to the Ministry of Health or Ghana Health Service come with their agenda and goals. This has been the trend over the years and led to the failures of several policies in the country. One government starts something, a new one comes and instead of continuing starts a new programme altogether*

*abandoning the previous one irrespective of how the previous programme was achieving results" [Chief, Mpohor]*

### 7.4.5 Poor Collaboration among Stakeholders

The success of health policies depends on how all stakeholders participate and collaborate in policy formulation and implementation. The study's findings reveal that such participation and collaboration among state and non-state actors have been abysmal. Policy decisions are taken at the top level without the transparency and involvement of relevant stakeholders at the district level. Chiefs, the traditional leaders who wield considerable influence on their subjects, are mostly sidelined in policy decisions. Similarly, policy beneficiaries are not involved in decisions that may directly or indirectly impact their lives. This development curtails their influence and ability to make meaningful contributions to health decisions affecting their lives and children. Lack of awareness and support for these policies by non-state actors may have led to poor implementation of policies.

*"I think one main challenge is the lack of collaboration. The district health authorities do not engage the local people, especially opinion leaders, religious leaders and even the Chief, in decision-making. They only seek their support when they need to assemble the community people. This is not the right way to go." [Chief, Mpohor]*

*"Seeking the views and opinions of local leaders and community members in decision-making on health is very important, but you hardly find that in the district. Some time ago, some mothers reported some side effects their children experienced when they slept in the mosquito nets, which made them stop using the nets, but now the same nets are distributed. If an avenue was created that enabled the local people to voice out their grievances to the officials of the district health directorates, I think that would make policies meet the needs of the people."[Matron of Nurses, Mpohor]*

### 7.4.6 Lack of Education and Sensitisation on Malaria Control Practices

Some respondents revealed that policies to eradicate malaria have failed to achieve desirable results due to the public's lack of education and regular sensitisation on malaria prevention and control practices. The failure to sleep in mosquito nets and indiscriminate dumping of refuse due

to ignorance has contributed to the prevalence of malaria across the districts. Some study participants mentioned that tackling malaria in their locality is a behavioural problem and that constant education is required. Some religious leaders opined that district health officials could use church service periods to educate the people on adopting good preventive practices to reduce malaria in their homes. Due to ignorance and negligence, it was revealed that some people use mosquito nets to fence their gardens and farms.

*"Lack of education about the situation and poor sanitation. The natives must be educated on sleeping in a treated mosquito net, good sanitation, cutting down the weeds in their environment, and wearing protective clothing. Some also do not complete their treatment course. Some parents stop halfway when they feel the child is getting better, and as such are not completely cured only to come back with the same symptoms or illness in space-time of three weeks."[Matron of Nurses, Mpohor]*

A religious leader commenting on the challenges responded:

"*The lack of education is a major challenge. I can also mention negligence because some people are aware of the dangers of the sickness but still ignore taking precautions. In my opinion, an effective way to reduce malaria is for our health workers to schedule meetings with the various churches to educate the natives on appropriate ways to fight malaria. Those in attendance would share the message with their neighbours when they get home; in essence, the masses are reached."[Catholic Bishop, Ada West]*

Commenting on the challenges, another religious leader had this to say:

*"On this issue, I will conclude that it is a behavioural problem, so proper education and public awareness programmes on malaria are the way to go. The sanitation situation here is also appalling. When you look around, you see stagnant water spread across the community, and as we have been taught, these are breeding places for mosquitoes. There are some days when gutters are desilted, but the sand and rubbish are left at the edges of the gutter only for the rains to wash them back in after a few days or hours. Furthermore, some people do not make appropriate use of mosquito nets. They use it for other purposes, such as fencing their garden or farms, rather than sleeping in them due to ignorance. We have people here who hardly visit the health facility when sick. Others also self-medicate, meaning they may do the same for their*

*children, which is a problem. Some even approach me for recommendations, but I redirect or instruct them to visit the health facility instead." [Matron of Nurses, Kassena-Nankana]*

## 7.5 OLS Regression Analysis

Before presenting the result of regression analysis, it is imperative to check and be satisfied that some classical assumptions are met. Thus, diagnostic checklist tests for the OLS regression were done, and all the traditional assumptions were fulfilled (Table 7.12).

Table 7-12: Diagnostic test for OLS regression

| *Test* | *P. value, Model 1* | *P. value, Model2* |
|---|---|---|
| Heteroskedasticity Test: White | 0.498 | 0.273 |
| Heteroskedasticity Test: Breusch-Pagan | 0.512 | 0.661 |
| LM test for autocorrelation up to order 1 | 0.344 | 0.392 |
| Autocorrelation up to order 1- Ljung-Box Q' | 0.676 | 0.230 |
| Test for normality of residual | 0.828 | 0.945 |
| Test for ARCH of order 1 | 0.287 | 0.39 |
| Non-linearity test (squares) | 0.188 | 0.112 |

The models do not suffer from autocorrelation, heteroskedasticity, and stability and normality test (Table 7.12).

### 7.5.1 Determinants of Children's U5 Mortality in Ghana

The OLS regression result indicates that all the explanatory variables in the model jointly influence U5MR in Ghana. Two (maternal mortality rate and malaria cases) out of the 12 independent variables were not statistically significant. Domestic government health expenditure, availability of potable water, women's employment, neonatal mortality, low birthweight, adolescent fertility, anaemia, pneumonia, overweight and insecticide-treated nets were statistically significant at certain levels and directions.

The results show an inverse connection between domestic general government health expenditure (DGHE) and U5 mortality in Ghana, statistically significant at 0.01 level (Table 7.13). Kerber et al. (2007) posit that financial constraints, further distances, low transport, and poor-quality care in health facilities impede access to health care for users who need it most. It is essential to indicate

that investments in healthcare and a particular priority for maternal and child health are political decisions (UNICEF, 2022). Over the past decade, Ghana has invested less than 15% in healthcare systems, as stipulated in the Abuja Declaration (AFDB, 2017). de-Graft Aikins and Koram (2017) stress that the over-dependency on donor funding for health care investments has constrained long-term health policy planning in Ghana, making the country's health care more reactive than proactive or preventive of health-related issues, including U5MR.

The results indicate an inverse relationship between female employment to population ratio (WEM) and the U5 mortality in Ghana, statistically significant at 0.01 level. This implies that the more women are gainfully employed, the less they will lose their children before their fifth birthday in the country each year, holding other factors constant (Table 7.13). Arguably, women working are likely to have more access to finance and health care services than those who depend on others to survive. Promoting inclusive job opportunities is necessary to be encouraged to be sustainable. Gender equality cannot be achieved until women have equal opportunities and decent jobs in the country, just like men.

The findings further indicate an inverse connection between the population using safely managed drinking water services (WATER) and the U5 mortality in Ghana, statistically significant at 0.01 level. This signifies that U5 mortality may be reduced if the number of inhabitants, including mothers and pregnant women, have access to clean and safe drinking water in the country (Table 7.13). This finding corroborates Kwarteng Acheampong & Eyram Avorgbedor's (2017) work, which found that water source predicts U5 mortality in Ghana. Clean and safe drinking water is still a big challenge and health issue in SSA countries relative to other regions (World Bank, 2022). Pregnant women and children without access to clean potable water services may catapult diseases and high U5 mortality in the country if drastic measures are not taken to mitigate it. The finding is consistent with those by (DaVanzo et al., 1983; Nyaaba et al., 2020 and Nyaaba et al. (2020).

The UN SDG2030 target is to end preventable deaths of newborn babies and children U5, with all countries aiming to reduce neonatal mortality to at least as low as 12 per 1000 live births (United Nations, 2015). The OLS results show a positive connection between the number of neonates dying before 28 days of age (NMR) and the children's U5 mortality rate in Ghana, statistically significant at 0.01 level (Table 7.13). This suggests that an increase in the number of

children dying within 28 days of age will bring about a corresponding increase in the U5MR in Ghana. This result is not surprising as the variable forms part of the number of U5 deaths in any country or region across the globe. Available data from the (World Bank, 2022) shows that meeting the target of reducing neonatal mortality to at least as low as 12 per 1,000 live births by 2030 remains a daunting challenge in Ghana and some SSA countries.

The findings indicate an inverse connection between low-birthweight babies (LBB) and children U5 mortality in Ghana, statistically significant at 0.01 level. This implies that children's U5 mortality may decrease if the number of low-birthweight babies increases within a given year, holding other factors constant (Table 7.13).

Table 7-13: Some determinants of U5MR in Ghana, 2000-2019

| ***Variable*** | ***Coefficient*** | ***Std. Error*** | ***t-ratio*** | ***p-value*** |
|---|---|---|---|---|
| Const | 430.021 | 70.769 | 6.076 | 0.000*** |
| DGHE | −0.0371 | 0.010 | −3.638 | 0.008*** |
| WEM | −0.711 | 0.136 | −5.217 | 0.001*** |
| WATER | −2.663 | 0.388 | −6.863 | 0.000*** |
| NMR | 5.738 | 0.449 | 12.79 | 0.000*** |
| LBB | −9.398 | 1.943 | −4.837 | 0.000*** |
| AFR | 1.073 | 0.311 | 3.454 | 0.012** |
| ANEMIA | −2.680 | 0.394 | −6.808 | 0.000*** |
| PNEUMONIA | 0.002 | 0.000 | 4.319 | 0.004*** |
| OW | −1.997 | 0.688 | −2.905 | 0.023** |
| ITNs | −0.037 | 0.014 | −2.649 | 0.033** |
| MMR | −0.013 | 0.024 | −0.5222 | 0.618 |
| MC | 0.0004 | 0.0092 | 0.0464 | 0.964 |
| $R^2$ | 0.999985 | Adjusted $R^2$ | 0.99996 | |
| F (12, 7) | 38557.64 | P-value(F) | 1.15e-15 | |

Note: *, ** and *** denote statistically significance at 10%, 5% and 1% levels, respectively

The findings further suggest a positive relationship between the adolescent fertility rate (AFR) and the children's U5 mortality in Ghana, which is statistically significant at 0.05 level (Table 7.13). This implies that U5 mortality may increase if adolescent fertility increases in the country yearly, holding other factors constant. This finding is consistent with studies by (Kwarteng Acheampong & Eyram Avorgbedor, 2017; Nyaaba et al., 2020). On the contrary, analyses by

(Abu et al., 2015; Kanmiki et al., 2014) show an inverse relationship. Studies by (Kanmiki et al., 2014) further suggest that mothers aged 35 and 49 were more likely to experience child U5 deaths than those under 20.

Teenage fertility is still high and is a big challenge in SSA countries such as Ghana (World Bank, 2022). Arguably, this is because young people are not well educated on the need for protective measures, such as condoms or contraceptives, to reduce unwanted pregnancies coupled with forced or early marriages. It implies a probability of more women getting pregnant, especially in Ghana, where birth control is hard to observe or hardly enforced. Although contraceptive prevalence, any methods (% of women ages 15-49) in Ghana increased from 17.2% in 1992 to 30.8% in 2017, it was still below SSA (31.2%) and the world (59.8%) in 2027 (World Bank, 2022).

Contrary to expectations, the findings show an inverse relationship between anaemia and U5 mortality in Ghana, statistically significant at the 0.01 level (Table 7.13). The results show a positive connection between pneumonia and U5 mortality in Ghana, statistically significant at 0.01 level (Table 7.13). This implies that U5 mortality may increase if pneumonia among U5 children increases in the country, holding other factors constant. The findings show an inverse relationship between overweight (OW) and U5 mortality in Ghana, statistically significant at 0.05 level (Table 7.13).

The findings show an inverse relationship between insecticide-treated nets and U5 mortality in Ghana, statistically significant at 0.05 (Table 7.13). This implies that children's U5 mortality may be reduced if the use of insecticide-treated nets increases in the country, holding other factors constant. This finding is consistent with the results by (Afoakwah et al., 2015; Florey et al., 2017), who show that U5 children in households with an ITN had significantly lower mortality than those without an ITNs.

### 7.5.2 U5 Malaria Prevalence and Mortality

It was imperative to examine malaria prevalence among U5 children of the mothers who participated in the study to measure the impact of policy interventions on malaria outcomes. As presented in Figure 7-8, the findings indicated that malaria remained a significant illness among children U5 across the four districts, as reported by 59.5% of the participants. This is followed by

cold mentioned (13%), cough (9%), headache (5.5%), fever (4%) and other sicknesses such as measles, pneumonia, and eye problems identified by 9% of participants. In Mpohor, 76% of the participants mentioned malaria as the sickness that their children U5 have suffered most, with others saying sicknesses such as cough (6%), headache (4%), cold (4%), fever (6%) and other such as measles, pneumonia and others (4%).

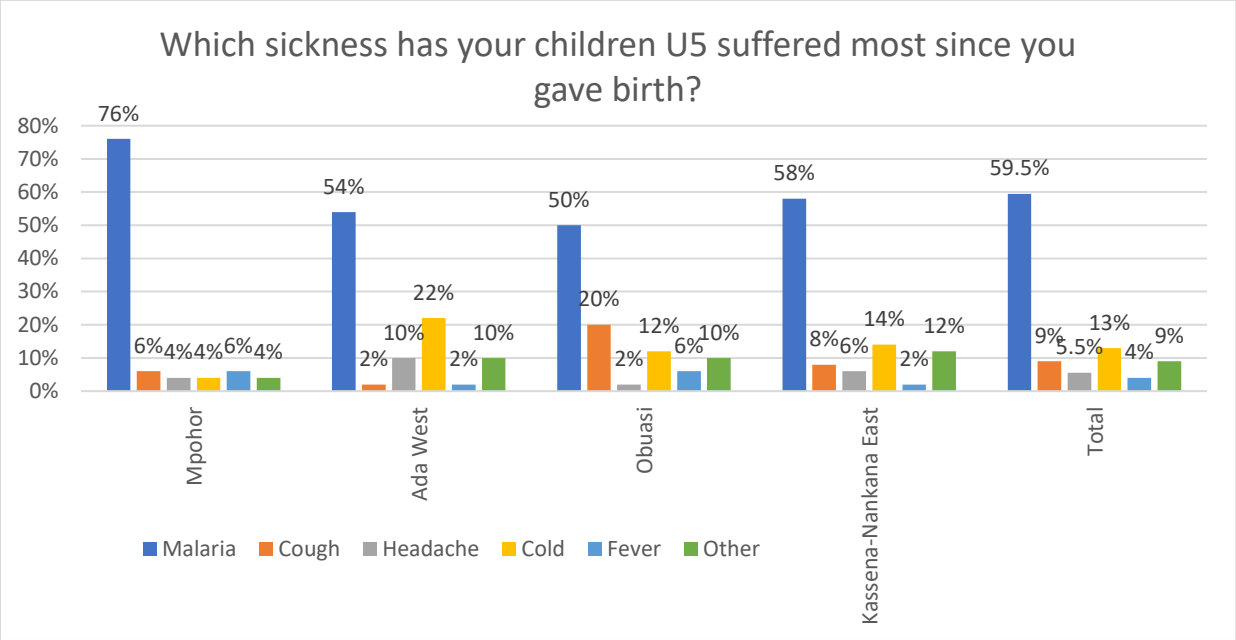


Figure 7-8: Sickness suffered most by children U5
Source: Field Data, 2022

Similarly, the respondents indicated that children U5 had suffered malaria (54%) the most in Ada West, followed by cold (22%), headache (10%), cough (2%), fever (2%), and other sicknesses 10%. In Obuasi, children U5 have suffered chiefly from malaria, as indicated by 50% of the participants; 20% mentioned cough, 12% identified cold, 6% mentioned fever, and 10% identified other sicknesses. The situation is no different in the Kassena-Nankana East district, where 58% of the mother's identified malaria as the sickness suffered most by their children U5. 14% indicated cold, 8% showed cough, 6% headache, 2% fever and 12% other illnesses (Figure 7-8). The initial results imply that children U5 in the four districts surveyed are prone to various diseases, especially malaria.

Table 7-14: Number of times children U5 have suffered Malaria

| Variable | Response | Frequency (N=200) | Min | Max | Mean | Std |
|---|---|---|---|---|---|---|
| How many times have your children U5 suffered from malaria | 1 | 83(41.5%) | 1 | 3 | 1.69 | 0.65 |
| | 2 | 96(48%) | | | | |
| | 3 | 21(10.5%) | | | | |

Source: Field Data, 2022

The participants were also asked to share how often their children U5 have suffered from malaria. With this, 48% of the participants indicated that their children U5 suffered twice from malaria, 41.5% indicated that their children have suffered from malaria just once, and 10.5% have had their children U5 suffer malaria three times in their lives. A mean of 1.69 (Table 7-14) implies that a child U5 will likely suffer from malaria at least once across the four districts.

Table 7-15: Has any of your children U5 died from malaria?

| District | | | Has any of your children under five years died from malaria? | | Total |
|---|---|---|---|---|---|
| | | | Yes | No | |
| Area | Mpohor | Count | 12 | 38 | 50 |
| | | % within Area | 24.0% | 76.0% | 100.0% |
| | | % of Total | 6.0% | 19.0% | 25.0% |
| | Ada West | Count | 7 | 43 | 50 |
| | | % within Area | 14.0% | 86.0% | 100.0% |
| | | % of Total | 3.5% | 21.5% | 25.0% |
| | Obuasi | Count | 5 | 45 | 50 |
| | | % within Area | 10.0% | 90.0% | 100.0% |
| | | % of Total | 2.5% | 22.5% | 25.0% |
| | Kassena-Nankana East | Count | 13 | 37 | 50 |
| | | % within Area | 26.0% | 74.0% | 100.0% |
| | | % of Total | 6.5% | 18.5% | 25.0% |
| Total | | Count | **37** | **163** | **200** |
| | | % within Area | 18.5% | 81.5% | 100.0% |
| | | % of Total | **18.5%** | **81.5%** | **100.0%** |

Source: Field Data, 2022

Regarding malaria deaths among children U5 in the study areas, 37 mothers (18.5%) have lost a child from malaria (see Table 7.15). This comprised 12 (6%) mothers from Mpohor, 7 (3.5%) from Ada West, 5 (2.5%) from Obuasi, and 13 (6.5%) from Kassena-Nankana East. Among the

mothers who indicated losing a child U5 to malaria, 35 had lost one child to malaria, whilst 2 had lost two children to malaria (Table 7.15).

Table 7-16: District and Number of U5 malaria death

| Indicators | | | If yes, how many? | | Total |
|---|---|---|---|---|---|
| | | | 1 | 2 | |
| Area | Mpohor | Count | 12 | 0 | 12 |
| | | % within Area | 100.00% | 0.00% | 100.00% |
| | | % of Total | 32.40% | 0.00% | 32.40% |
| | Ada West | Count | 7 | 0 | 7 |
| | | % within Area | 100.00% | 0.00% | 100.00% |
| | | % of Total | 18.90% | 0.00% | 18.90% |
| | Obuasi | Count | 5 | 0 | 5 |
| | | % within Area | 100.00% | 0.00% | 100.00% |
| | | % of Total | 13.50% | 0.00% | 13.50% |
| | Kassena-Nankana East | Count | 11 | 2 | 13 |
| | | % within Area | 84.60% | 15.40% | 100.00% |
| | | % of Total | 29.70% | 5.40% | 35.10% |
| Total | | Count | 35 | 2 | 37 |
| | | % within Area | 94.60% | 5.40% | 100.00% |
| | | % of Total | 94.60% | 5.40% | 100.00% |

Source: Field Data, 2022

Thus, 39 children U5 have died from malaria across the four districts surveyed. Kassena-Nankana East had the highest number of deaths with 15 deaths, followed by Mpohor with 12 deaths, Ada West with 7 fatalities and Obuasi recording the lowest number with 5 malaria deaths (Table 7-16).

### 7.5.3 Determinants of Children's U5 Mortality due to Malaria in Ghana

The OLS regression result indicates that all the explanatory variables in the model jointly influence children's U5 mortality rate from malaria (U5MRM) in Ghana. One (pneumonia) out of the eight independent variables was statistically insignificant. Domestic government health expenditure, availability of potable water, malaria infection prevalence, insecticide-treated nets, overweight, and stunted were statistically significant at certain levels and directions.

Similar to the results in model one, the findings show an inverse connection between domestic general government health expenditure (DGHE) and the children's U5 mortality rate from malaria infection in Ghana, statistically significant at 0.05 level (Table 7.17). Financing health care by the government and private sector is a critical component of policy implementation and a functioning

health system governance, and it may contribute to reducing U5MRM in the country if evenly distributed and effectively utilized. As indicated earlier in the study, the performance of malaria health policies in Ghana has been constrained by insufficient monetary, personnel, and logistic support.

Table 7-17:Determinants of children U5 mortality from malaria (U5MRM) in Ghana, 2000-2019

| *Variable* | *Coefficient* | *Std. Error* | *t-ratio* | *p-value* |
|---|---|---|---|---|
| Const | 4229.43 | 725.213 | 5.832 | 0.000*** |
| DGHE | −1.31152 | 0.447 | −2.936 | 0.013** |
| WATER | −27.8810 | 7.898 | −3.530 | 0.005*** |
| LBB | −67.6221 | 14.758 | −4.582 | 0.,000*** |
| MC | 0.2756 | 0.143 | 1.92 | 0.081* |
| ITNS | −1.5017 | 0.412 | −3.646 | 0.004*** |
| OVERWEIGHT | −77.4070 | 16.795 | −4.609 | 0.001*** |
| STUNTED | −27.1534 | 8.884 | −3.056 | 0.012** |
| PNEUMONIA | 0.003 | 0.008 | 0.368 | 0.720 |
| $R^2$ | 0.9933 | Adjusted $R^2$ | | 0.9885 |
| F(8, 11) | 204.4543 | P-value(F) | | 0.0000*** |

Note: *, ** and *** denote statistically significant at 10%, 5% and 1% levels, respectively

The findings indicate an inverse connection between the population using safely managed drinking water services (WATER) and the children mortality in Ghana, statistically significant at 0.01 level. This signifies that U5 mortality from malaria may be reduced if the number of inhabitants, including mothers and pregnant women, have access to clean and safe drinking water in the country (Table 7.17). Water services are among the critical components of social amenities that need to be provided by the government for everyone, especially mothers and children U5. Nonetheless, it remains one of the significant issues in the country as some people do not have adequate access to clean water services.

The findings indicate a positive relationship between the number of malaria cases and children U5 mortality from malaria in Ghana, albeit with a weak statistically significant level of 0.1 (Table 7.17). As evident in model 1, the results show an inverse relationship between the insecticide-treated nets and the U5 mortality rate from malaria in Ghana, statistically significant at 0.01 level. This signifies that U5 mortality from malaria may be reduced if the number of Insecticide Treated

Nets are well distributed and used to prevent mosquito bites on children U5 in the country (Table 7.17).

Contrary to expectations, the findings show an inverse relationship between overweight children and the U5 mortality rate from malaria in Ghana, statistically significant at the 0.01 level (Table 7.17). Similarly, the result shows an inverse connection between stunted children and the U5 mortality rate from malaria in Ghana, statistically significant at a 0.05 level.

## 7.5.4 Determinants of U5 Mortality from Malaria in Four Districts in Ghana

### 7.5.4.1 Determinants of Children's U5 Mortality from Malaria in Mpohor District

The OLS regression result indicates that all the explanatory variables in the model jointly influence children's U5 mortality from malaria in Mpohor district of Ghana. Nevertheless, four (age of mothers, NHIS quality service, the amount spent on medical, and affordability of transportation system) out of the 12 independent variables were statistically insignificant. Marital status, years the U5 mothers have lived in Mpohor, seeking healthcare for the children, the number of times children U5 had malaria, difficulty in accessing health services, and access to mosquito nets were statistically significant at certain levels and directions (Table 7-18).

Contrary to the prior expectation, the OLS results indicate a positive relationship between the mothers' marital status and the U5 mortality from malaria in the area, statistically significant at 0.01 level (Table 7.18). Studies by Kanmiki et al. (2014) show that married women had a 27% less likelihood of experiencing a U5 mortality death than single, divorced or widowers in rural northern Ghana.

The results indicate an inverse connection between the length of years that mothers live in Mpohor district and the U5 mortality due to malaria in the area, statistically significant at 0.01 level. This implies that the more mothers live in the area, the more minor the probability they lose their children due to malaria, holding other factors constant (Table 7.18). The results indicate an inverse connection between seeking healthcare facilities around Mpohor district and children's U5 mortality from malaria in the area, statistically significant at 0.05 level. This implies that the more mothers seek and have access to health facilities for malaria treatment, the less probability they lose their children due to malaria cases, holding other factors constant (Table 7.18).

Table 7-18: Some determinants of U5 malaria mortality (U5MM) in Mpohor

| *Variable* | *Coefficient* | *Std. Error* | *t-ratio* | *p-value* |
|---|---|---|---|---|
| Const | −0.4088 | 0.742 | −0.5513 | 0.5848 |
| Q1 age of mothers | 0.095 | 0.072 | 1.313 | 0.1974 |
| Q2 marital status of mothers | 0.922 | 0.282 | 3.269 | 0.0023*** |
| Q3 years lived in the district | −0.422 | 0.116 | −3.624 | 0.001*** |
| Q4 NHIS quality service | −0.0517 | 0.072 | −0.7170 | 0.478 |
| Q5 amount spent on healthcare | 0.004 | 0.025 | 0.175 | 0.862 |
| Q6 always seek healthcare | −0.347 | 0.168 | −2.061 | 0.0464** |
| Q7 number of times had malaria | 0.328 | 0.129 | 2.543 | 0.0153** |
| Q8 difficulty in accessing healthcare | 1.055 | 0.294 | 3.582 | 0.001*** |
| Q9 easy access to health care | −0.812 | 0.258 | −3.150 | 0.003*** |
| Q10 lack of access to mosquito nets | 0.124 | 0.059 | 2.092 | 0.043** |
| Q11 lack of insecticides | 0.150 | 0.073 | 2.048 | 0.048** |
| Q12 affordability of transportation system | −0.067 | 0.046 | −1.455 | 0.154 |
| $R^2$ | 0.547 | | Adjusted $R^2$ | 0.400 |
| F(12, 37) | 3.720 | | P-value(F) | 0.001 |

Note: ** and *** denote statistically significant at 5% and 1% levels, respectively

The results indicate a positive relationship between the number of times children U5 have malaria and those that die due to the disease, statistically significant at 0.05 level. This implies that the more the children experience malaria, the more the chances of them dying from the disease, as some may not survive it, holding other factors constant (Table 7.18). The OLS results indicate a positive relationship between the difficulty in accessing medical care in Mpohor district and the U5 mortality due to malaria in the area, statistically significant at 0.01 level. This implies that the more difficult it is for mothers to access malaria treatment, the more children U5 may die from the disease in the district (Table 7.18).

The results indicate an inverse connection between easy access to medical facilities for malaria treatment and U5 mortality due to malaria in the area, statistically significant at 0.01 level. This implies that the more easier it is for the mothers to access health facilities for malaria treatment, the less the probability of them losing their children due to malaria cases, holding other factors constant (Table 7.18). Similarly, Afoakwah et al. (2015) found that health facility delivery reduces U5 mortality in northern Ghana.

ITN may be a significant intervention that helps eradicate malaria, especially among children U5 in Ghana. This study shows that almost all the mothers with children U5 indicated using ITN at home, which they received from the mass and continuous ITNs distribution campaigns. The OLS results indicate a positive relationship between a lack of mosquito nets and U5 mortality from malaria in Mpohor, statistically significant at 0.05 level (Table 7.18). It implies that more children may die from malaria if mosquito nets are not used to cover them.

Just as the results from the secondary data indicate a positive relationship between the expensive insecticides in Mpohor district and the U5 mortality due to malaria in the area, statistically significant at 0.05 level (Table 7.18). This implies that more children U5 may die if mothers or families cannot afford to buy insecticides for use in the area.

#### 7.5.4.2 Determinants of Children's U5 Mortality from Malaria in Ada West District

The OLS regression result indicates that all the explanatory variables in the model jointly influence children's U5 mortality from malaria in the Ada West district of Ghana. Nevertheless, seven (marital status of mothers, years lived in the district, always seeking healthcare, difficulty in accessing healthcare, lack of access to mosquito nets, lack of insecticides, and affordability of transportation system) out of the twelve independent variables were statistically insignificant. Age of mothers, NHIS quality, seeking healthcare for their children, the number of times children U5 had malaria, and easy access to health care were statistically significant at certain levels and directions (Table 7-19).

Table 7-19: Some determinants of U5 malaria mortality (U5MM) in Ada West

| *Variable* | *Coefficient* | *Std. Error* | *t-ratio* | *p-value* |
|---|---|---|---|---|
| Const. | 2.1782 | 0.8619 | 2.5270 | 0.0159** |
| Q1 age of mothers | 0.0169 | 0.0083 | 2.0300 | 0.0496** |
| Q2 marital status of mothers | 0.2035 | 0.1329 | 1.5310 | 0.1344 |
| Q3 years lived in the district | −0.0146 | 0.0669 | −0.2185 | 0.8282 |
| Q4 NHIS quality service | −0.4327 | 0.1609 | −2.690 | 0.0107** |
| Q5 amount spent on healthcare | −0.3585 | 0.1697 | −2.113 | 0.0414** |
| Q6 always seek healthcare | 0.1223 | 0.1485 | 0.8234 | 0.4155 |
| Q7 number of times had malaria | −0.1368 | 0.0809 | −1.690 | 0.0994* |
| Q8 difficulty in accessing healthcare | 0.0966 | 0.1613 | 0.5986 | 0.5531 |
| Q9 easy access to health care | −0.2470 | 0.0957 | −2.580 | 0.0140** |
| Q10 lack of access to mosquito nets | 0.1804 | 0.1516 | 1.1900 | 0.2415 |
| Q11 lack of insecticides | 0.3248 | 0.2601 | 1.2480 | 0.2197 |
| Q12 affordability of transportation system | −0.0047 | 0.0798 | −0.05862 | 0.9536 |
| $R^2$ | 0.454 | | Adjusted $R^2$ | 0.276 |
| F(12, 37) | 2.5601 | | P-value(F) | 0.0141 |

Note: *, and ** denote statistically significant at 10% and 5% levels, respectively

Just as revealed in Mpohor district, the results indicate a positive relationship between mothers' age and children's U5 mortality due to malaria in Ada West, statistically significant at 0.05 level (Table 7.19). Arguably, since most mothers are young and may not have had experience caring for their children, they are likely to lose their children due to malaria. This result is consistent with the earlier findings in the secondary data (see the relationship between the adolescent fertility rate and the children U5 mortality in Ghana in Table 7-13).

In the opposite direction, the results indicate an inverse connection between NHIS quality and children U5 mortality from malaria in Ada West district, statistically significant at 0.05. This implies that the more NHIS provide quality services for malaria treatment, the less probability they lose their children due to malaria cases, holding other factors constant (Table 7.19). This result tallies the findings in Mpohor district.

The results indicate an inverse connection between the amount spent on healthcare in Ada West district and the U5 mortality due to malaria in the area, statistically significant at 0.05 level. This implies that the more mothers spend on healthcare, the less the probability of losing their children due to malaria, holding other factors constant (Table 7.19).

Just as found in Mpohor district, the results indicate an inverse connection between easy access to medical facilities for malaria treatment and U5 mortality due to malaria in Ada West district, statistically significant at 0.05 level. This implies that the more access to health facilities for malaria treatment, the less the probability of losing children due to malaria cases, holding other factors constant (Table 7.19). This result tallies with works by Afoakwah et al. (2015), who also found that health facility delivery reduces U5 mortality in northern Ghana.

#### 7.5.4.3 Determinants of Children's U5 Mortality from Malaria in Obuasi District

The OLS regression result indicates that all the explanatory variables in the model jointly impact children's U5 mortality due to malaria in the Obuasi district of Ghana. Nonetheless, three of the twelve independent variables (mothers' marital status, the amount spent on medical, and easy access to health care ) were not statistically significant (Table 7-20). Just as found in Ada West and Kassena-Nankana districts, the results indicate a positive relationship between mothers' age

and children's U5 mortality due to malaria in Obuasi, statistically significant at 0.05 level (Table 7.19).

The results indicate an inverse connection between the years mothers lived in the Obuasi district and children's U5 mortality from malaria in the area, statistically significant at 0.01 level. This implies that the more years mothers live in the area, the less the probability of them losing their children due to malaria cases, holding other factors constant (Table 7.20). This result aligns with the findings in Mpohor district.

Table 7-20: Some determinants of U5 malaria mortality (U5MM) in Obuasi

| *Variable* | *Coefficient* | *Std. Error* | *t-ratio* | *p-value* |
|---|---|---|---|---|
| Const. | −0.4086 | 0.6649 | −0.6146 | 0.5426 |
| Q1 age of mothers | 0.0401 | 0.0091 | 4.415 | <0.0001*** |
| Q2 marital status of mothers | 0.2142 | 0.2295 | 0.9336 | 0.3566 |
| Q3 years lived in the district | −0.3766 | 0.1252 | −3.007 | 0.0047*** |
| Q4 NHIS quality service | −0.0851 | 0.0387 | −2.199 | 0.0342** |
| Q5 amount spent on healthcare | 0.00259 | 0.0190 | 0.1361 | 0.8925 |
| Q6 always seek healthcare | −0.19323 | 0.1124 | −1.720 | 0.0938* |
| Q7 number of times had malaria | 0.6872 | 0.1612 | 4.262 | 0.0001*** |
| Q8 difficulty in accessing healthcare | 0.3883 | 0.1687 | 2.301 | 0.0271** |
| Q9 easy access to health care | −0.0712 | 0.1791 | −0.3977 | 0.6931 |
| Q10 lack of access to mosquito nets | 0.6872 | 0.1612 | 4.262 | 0.0001*** |
| Q11 lack of insecticides | 0.5437 | 0.1950 | 2.788 | 0.0083*** |
| Q12 affordability of transportation system | −0.0901 | 0.0435 | −2.069 | 0.0456** |
| $R^2$ | 0.5333 | Adjusted $R^2$ | | 0.3819 |
| F(12, 37) | 3.5234 | P-value(F) | | 0.0016*** |

Note: *, ** and *** denote statistically significant at 10%, 5% and 1% levels, respectively

The results further indicate an inverse connection between NHIS quality services and children U5 mortality from malaria in Obuasi, statistically significant at 0.05. This implies that the more NHIS provide quality services for malaria treatment, the less probability they lose their children due to malaria cases, holding other factors constant (Table 7.20). This finding is similar to the results obtained in Ada West and Kassena-Nankana districts.

The results indicate a positive relationship between the number of times children U5 have malaria and those that die due to the disease in Obuasi, statistically significant at 0.05 level, suggesting that the more the children experience malaria, the more the chances of them dying from the disease (Table 7.20). This finding is akin to the results obtained in Mpohor district.

Just as found in Mpohor district, the OLS results indicate a positive relationship between the difficulty in accessing medical care in the Obuasi district and the U5 mortality due to malaria in the area, statistically significant at 0.01 level. This implies that the more it is tedious for mothers to access malaria treatment, the more children U5 may not survive the disease in the districts (Table 7.20).

The OLS results indicate a positive relationship between a lack of mosquito nets and U5 mortality from malaria and U5 mortality from the disease in Obuasi district, statistically significant at 0.01 level (Table 7.20). This result is similar to the finding in Mpohor district.

The findings indicate a positive relationship between the expensive insecticides in Obuasi district and the U5 mortality due to malaria in the area, statistically significant at 0.05 level (Table 7.20). This implies that more children U5 may not survive if mothers or families cannot afford to buy insecticides in the area. This result is similar to the Mpohor district finding and the secondary data results.

The results indicate a negative relationship between the affordability of the transportation system and children U5 mortality due to malaria in Obuasi district, statistically significant at 0.05 level, suggesting that the more the affordable transportation system in the area, the less the chances of them dying from the disease as they could easily visit a hospital when needed (Table 7.20).

#### 7.5.4.4 Determinants of Children's U5 Mortality from Malaria in Kassena-Nankana District

The OLS regression result indicates that all the explanatory variables in the model jointly influence children's U5 mortality from malaria in Mpohor district of Ghana. Nevertheless, five out of the twelve independent variables (age of mothers, NHIS quality service, the amount spent on medical care, lack of access to mosquito nets, and affordability of transportation system) were statistically insignificant. Marital status, years the U5 mothers have lived in Mpohor, seeking healthcare for their children, the number of times children U5 had malaria, and difficulty in

accessing health services were statistically significant at certain levels and directions (Table 7-21).

Table 7-21: Some determinants of U5 malaria mortality (U5MM) in Kassena-Nankana East

| *Variable* | *Coefficient* | *Std. Error* | *t-ratio* | *p-value* |
|---|---|---|---|---|
| Const | 1.3469 | 0.7867 | 1.7120 | 0.0952* |
| Q1 age of mothers | 0.0174 | 0.0090 | 1.9250 | 0.0619* |
| Q2 marital status of mothers | −0.0391 | 0.1610 | −0.2426 | 0.8097 |
| Q3 years lived in the district | 0.1231 | 0.0643 | 1.9140 | 0.0634* |
| Q4 NHIS quality service | −0.1738 | 0.0510 | −3.410 | 0.0016*** |
| Q5 amount spent on healthcare | −0.0364 | 0.0192 | −1.892 | 0.0663* |
| Q6 always seek healthcare | 0.1390 | 0.0916 | 1.5170 | 0.1377 |
| Q7 number of times had malaria | −0.1329 | 0.0960 | −1.385 | 0.1743 |
| Q8 difficulty in accessing healthcare | −0.0986 | 0.1631 | −0.6045 | 0.5492 |
| Q9 easy access to health care | −0.3597 | 0.1502 | −2.395 | 0.0218** |
| Q10 lack of access to mosquito nets | −0.1318 | 0.1351 | −0.9756 | 0.3356 |
| Q11 lack of insecticides | 0.1160 | 0.0540 | 2.1500 | 0.0382** |
| Q12 affordability of transportation system | −0.0330 | 0.046 | −1.455 | 0.154 |
| $R^2$ | 0.4915 | | Adjusted $R^2$ | 0.3266 |
| F(12, 37) | 2.981 | | P-value(F) | 0.0053*** |

Note: *, ** and *** denote statistically significant at 10%, 5% and 1% levels, respectively

The results further indicate an inverse connection between NHIS quality services and children's U5 mortality due to malaria in Kassena-Nankana, statistically significant at the 0.01 level (Table 7.21). This finding is similar to the results obtained in the Ada West and Obuasi districts.

The results indicate an inverse connection between easy access to medical facilities for malaria treatment and U5 mortality due to malaria in Kassena-Nankana East, statistically significant at 0.05 level. This implies that the more mothers easier it is for the mothers to access health facilities for malaria treatment, the less the probability of them losing their children due to malaria cases, holding other factors constant (Table 7.21). This finding is similar to the results obtained in Mpohor and Ada West districts and the works of Afoakwah et al. (2015), who found that health facility delivery reduces U5 mortality in northern Ghana.

The findings indicate a positive relationship between the lack of insecticides and the U5 mortality from malaria in Kassena-Nankana East, statistically significant at 0.05 level (Table 7.21). This

finding is similar to the results obtained in Mpohor and Obuasi districts.

### 7.5.5 Similarities and Differences in the Four Districts Under Study

This subchapter attempts to show similarities and differences in results presented in chapter 7.4 in the four districts under study. This makes it easier for readers to compare and contrast the presented results. Similarly, the summary of the findings is shown in Table 7- 22.

**Q1 age of mothers:** contrary to expectations, the results show a positive relationship between mothers' age and children's. U5 mortality due to malaria in Ada West and Obuasi. This may be because some mothers under study were too young to care for their babies when they had malaria. Also, the result shows a weak positive relationship between the variables in Kassena-Nankana East. There is no statistically significant difference between the variables in Mpohor.

**Q2 marital status of mothers:** contrary to expectations, the results show a positive relationship between mothers' marital status and children's U5 mortality due to malaria in Ada West and Obuasi. Just as in the case of mothers' age, some single mothers may find it challenging to take care of their children as if not with their husbands. Notwithstanding, some married women struggle to meet their children's needs even when married due to poverty. There is no statistically significant difference between Ada West, Obuasi and Kassena-Nankana variables.

**Q3 years lived in the district:** as expected, the results show an inverse relationship between years lived in the district and children's U5 mortality due to malaria in Mpohor and Obuasi. On the contrary, the result shows a weak positive relationship between the variables for Kassena-Nankana East. There is no statistically significant between the variables in Ada West.

**Q4 NHIS quality service:** as expected, the results show an inverse relationship between NHIS quality service and children U5 mortality due to malaria in Ada West, Obuasi and Kassena-Nankana East. There is no statistically significant difference between the variables in Mpohor.

**Q5 amount spent on healthcare:** as expected, the results show an inverse strong and weak relationship between the amount spent on healthcare and children U5 mortality due to malaria in Ada West and Kassena-Nankana, respectively. There is no statistically significant difference between the variables in Mpohor and Obuasi.

**Q6 Always seek healthcare:** as expected, the results show an inverse strong and weak relationship between the number of times mother seek healthcare and children U5 mortality due to malaria in Mpohor and Obuasi, respectively. There is no statistically significant difference between Ada West and Kassena-Nankana variables.

**Q7 Number of times they had malaria:** as expected, the results show a positive relationship between the number of times they had malaria and children U5 mortality due to malaria in Mpohor and Obuasi. On the contrary, the results show a weak negative relationship for Ada West. There is no statistically significant difference between the variables in Kassena-Nankana East.

**Q8 difficulty in accessing healthcare:** as expected, the results show a positive relationship between difficulty in accessing healthcare and children U5 mortality due to malaria in Mpohor and Obuasi. There is no statistical significance between Ada West and Kassena-Nankana East variables.

**Q9 easy access to health care:** as expected, the results show an inverse relationship between easy access to health care and children U5 mortality due to malaria in Mpohor, Ada West and Kassena-Nankana East. Arguably, the healthcare issue is more or less the same in almost all the districts. On the other hand, there is no statistically significant difference between the variables in Obuasi.

Table 7-22: Determinants of U5 mortality due to malaria in the four districts- similarities and differences

| | ***A priori expect.*** | ***Signs/outcomes*** | | | |
|---|---|---|---|---|---|
| Variable/District | | Mpohor | Ada West | Obuasi | Kassena-Nankana |
| Q1 age of mothers | - | NS | **+ | ***+ | *+ |
| Q2 marital status of mothers | - | ***+ | NS | NS | NS |
| Q3 years lived in the district | - | ***- | NS | ***- | *+ |
| Q4 NHIS quality service | - | NS | **- | **- | ***- |
| Q5 amount spent on healthcare | - | NS | **- | NS | *- |
| Q6 always seek healthcare | - | **- | NS | *- | NS |
| Q7 number of times had malaria | + | **+ | *- | ***+ | NS |
| Q8 difficulty in accessing healthcare | + | ***+ | NS | **+ | NS |
| Q9 easy access to health care | - | ***- | **- | NS | **- |
| Q10 lack of access to mosquito nets | + | **+ | NS | ***+ | NS |

| | | | | | |
|---|---|---|---|---|---|
| Q11 lack of insecticides | + | **+ | NS | ***+ | **+ |
| Q12 affordable transport system | - | NS | NS | **- | NS |

Note: - and + stand for the direction of the a priori expectation, negative and positive, respectively; *, ** and *** denote statistically significant at 10%, 5% and 1% levels, respectively. NS indicates there is no statistically significant difference between the variables

**Q10 Lack of access to mosquito nets:** as expected, the results show a positive relationship between lack of access to mosquito nets and children's U5 mortality due to malaria in Mpohor and Obuasi. There is no statistically significant difference between Ada West and Kassena-Nankana East variables. **Q11 lack of insecticides:** as expected, the results show a positive relationship between lack of insecticides and children U5 mortality due to malaria in Mpohor, Obuasi and Kassena-Nankana East. There is no statistically significant difference between the variables in Ada West.

**Q12 affordability of transportation system:** as expected, the results show an inverse relationship between the affordability of the transportation system and children's U5 mortality due to malaria in Obuasi. Surprisingly, there is no statistically significant difference between the Mpohor, Ada West and Kassena-Nankana East variables.

By and large, this study has shown new insights and conflicting results in some variables and districts, as explained above. Arguably, the contradictory directions of the findings or failure to reject null hypotheses in some variables, especially in the Ada West district, might be the consequence of statistical analysis. Even though the number of respondents in each district reached the minimum requirements of this type of study, the number of respondents was small. Future researchers should increase the number of respondents and incorporate additional variables in the models for this type of study.

## 7.6 Discussions

Public policy is a complex process. It is characterised by an objective, instruments to accomplish it, the institutional arrangement for implementing the policy, and the actors involved. Yet every public policy mostly depends on the framework put in place (actor's motivation and duty) to accomplish the intended goal (Potueck, 2016). To begin with, it is the state's role to ensure that all of its population get equal access to quality and basic health care. Through the manifestation of good governance, leadership has a key role in realising a healthy population, particularly children U5, who are more prone to risks. U5 are the most vulnerable population in Africa. This is the case of Ghana.

### 7.6.1 Discrepancies between health policy strategies and Implementation

The study sought to identify the specific health policies formulated and implemented to address malaria among children U5 in Ghana. The findings indicate that since the 1900s, the country has introduced several policies to tackle malaria among the populace. Malaria interventions have mainly focused on vector control and treatment. It is also the case that malaria policies and interventions have been primarily driven by international organisations such as the WHO, Global Fund, UNICEF, UN, and the World Bank. The introduction of the MDGs demonstrated a concerted effort to reduce child mortality and promote child health. The current SDGs enforce the determination of the global community to promote child well-being and development through providing quality health care in countries such as Ghana. Similarly, Ghana has not relented in addressing this problem, considering its high child mortality.

Consequently, the U5 mortality rate steadily reduced between 2000 and 2020. Nonetheless, the country is far from achieving the U5 mortality target by 2030. The study reveals that the current policies that have been implemented to tackle malaria among children U5, especially at the district level, are the NHIS, the free distribution of ITNs to pregnant women, households and school children; IRS (which is mainly happening in a minor portion of Ghana - the Upper west region), and the use of ACTs for treatment of malaria cases.

The NHIS policy introduced in 2003 continues to play a significant role in enabling access to health care delivery by removing financial barriers and the out-of-pocket payment system that hampered health care access before its introduction. The NHIS provides access to medical services but is not limited to in-patient and out-patient care and maternal care involving antenatal, delivery and postnatal services. Diagnostic, dental, nose, ear and throat, and emergency services (Twum et al., 2018). The findings suggest that most mothers with U5 children are beneficiaries of the scheme. This is consistent with studies by (Anaba et al., 2022; Kwarteng et al., 2020; Acheampong & Avorgbedor, 2017). These studies demonstrated that children below the age of 18 years are more likely to be enrolled on the scheme. Kwarteng et al. (2020) found that 57% of children in Ghana were beneficiaries of the NHIS. Anaba et al. (2022) also revealed that 58.4% of children under-five were beneficiaries of the NHIS.

Similarly, other studies have indicated that women were more likely to be insured by the NHIS than men. In a national survey, Ayanore et al. (2019) found that 66% of women were beneficiaries compared to 52.6% of men. The multiple indicator cluster survey by the Ghana Statistical Service (2011) also indicated that 69% and 54% of women and children U5, respectively, have been registered with the NHIS. The increased enrolment of children under five has been attributed to the exemption policy that sought to remove financial barriers to access to child health care by exempting children under five from paying NHIS premiums (Kwarteng et al., 2020).

However, despite the intent of the NHIS to eradicate out-of-pocket payments to access health care, some payments made by beneficiaries seeking health care reflect an apparent discrepancy between policy intention and practice. The study identified that beneficiaries pay for malaria drugs to access complete medical services. The study found that beneficiaries spent an average of GH¢20 (as of 2018, when the data were collected) on malaria drugs for their children, which is expensive for the rural poor. Dalinjong et al. (2018) similarly found that NHIS did not cover all medical expenses of women beneficiaries with out-of-pocket payments totalling about GH¢17.5, which involved payment for drugs and ultrasound scan services. Akweongo et al. (2021) also discovered that 63.2% of insured clients paid for prescriptions, whilst 34.9% were prescribed medicines to buy outside the health facility. Making NHIS insurers pay for drugs tends to

constrain access to health care, especially among low-income people, impeding Ghana's quest to achieve universal health coverage and SDG 3.

Over the years, this development has occasioned some persistent scheme challenges. Health providers in Ghana, especially Quasi and private healthcare institutions, continue to lament over the delays in the payment of claims by the NHIA. Such delays in reimbursing these providers for service rendered to insurers could last over four months (Nsiah-Boateng et al., 2016). This tends to put an undue financial burden on service providers who struggle to finance their facilities' day-to-day administration, hence the difficulty in restocking their medical supplies to provide prompt and quality service. The resulting outcome is that health care providers are demanding NHIS insurers to make cash payments for drugs and other health care services they receive.

In some cases, NHIS insurers are denied drugs in these facilities and ordered to procure them in pharmacies. This makes the NHIS policy not pro-poor as initially intended. The financial challenges of the NHIS account for the delay in the payment of claims to health care providers. The increasing enrolment rate and utilization of the scheme, coupled with the meagre premiums paid by the relatively less non-exempt beneficiaries, put the NHIS in a financially insolvent situation (ISSER, 2020). This is further worsened by the poor financial management, fraud, and corruption that have characterised the scheme and hampered its successful implementation (Kodom et al., 2019; ISSER, 2020).

Moreover, the incidences surrounding the formulation of the NHIS policy have made its implementation highly political. The policy was introduced in the heat of a political season and has been subsequently used for political campaigns during national election periods. The scheme has, therefore, become an avenue for rewarding party loyalists such that recruitment of top management staff at the national, regional and district levels is highly politically influenced by the party in power (Fusheini, 2016). Consequently, a change in government also results in a change in the scheme's top management staff. This hampers continuity in the administration of the scheme after the political transition. The new administration resulted in policy changes, introducing new complexities in implementing the policy, especially among private healthcare providers. Since its inception, the NHIS has become primarily a political tool to garner votes rather than a technical institution to improve access to health care. The consequence is that many political connotations have been attached to the scheme to the extent that it deters individuals

from enrolling or renewing their membership because it is associated with a particular political party (Fusheini, 2016; Christmals & Aidam, 2020). The NHIS policy in its current form reflects a top-down policy implementation scenario with political elites having central and supreme control over the scheme's implementation at the national, regional and district levels.

The overarching influence of political actors in implementing the NHIS at the expense of technical actors is a threat to the sustainability of the policy, especially in the current situation where such political influence has not translated into making sufficient funding available for the successful implementation of the scheme. Policy theorists such as Van Meter and Van Horn (1975), Sabatier and Mazmanian (1979), Knoepfel et al. (2010) have underscored the importance of adequate financial resources in the successful implementation of public policies. The absence of sufficient financial resources hampers the proper performance of legally mandated policies. As Sabatier and Mazmanian (1979) recommended, whilst it may be challenging to determine the adequacy of policy resources in practice, setting a threshold of funding appropriation and allocating funds above this threshold is essential to the success of policy implementation. However, this has not been the case with the NHIS, which operates with limited funding.

This study further identifies the distribution of ITNs as a major prevention intervention to eradicate malaria in the country, especially among children U5. Almost all the mothers with U5 indicated using ITN at home, which they received from the mass and continuous ITNs distribution campaigns. This implied that using ITNs is prevalent among mothers to prevent their children from malaria at home. This is consistent with Asumah et al. (2021), who found that 97.8% of pregnant women surveyed had ITNs, and 94.8% used them to prevent malaria at home. Similarly, the OLS regression results show an inverse relationship between ITNs and U5 mortality rate, implying that U5 mortality may be reduced if more ITNs are supplied and used by U5 children in the country. In the same direction, Nyavor et al. (2017), in their study of ITNs among 450 mothers and caregivers, identified 81.3% ownership and 66.4% usage. The use of ITNs among children U5 and pregnant women has markedly increased since 2008 (U.S. President's Malaria Initiative (PMI), 2022). However, it is clear from the findings of this study that without the continuous implementation of the ITNs distribution campaigns, many mothers will not have access to ITN. This was established by the fact that there is low availability of ITNs across the four districts that individuals can get to procure, and in some cases, when available,

mothers had to pay to get it even though the intervention was towards the free distribution of ITNs. Moreover, the ITNs sold at pharmacy stores are sometimes deemed expensive. Therefore, more resources must be committed to distributing ITNs across the country to ensure that desirable results are realized regarding eradicating malaria under five.

Although the study results and previous studies show increasing usage of ITNs among pregnant women and women with U5, it also became evident that using ITNs may not reduce the malaria rate because mosquitoes bite children before sleeping in the nets. This is why, despite the mothers indicating using ITNs, they still reported U5 malaria prevalence and mortality. This suggests that the distribution of the ITNs alone is insufficient to prevent malaria without other vector control interventions, such as the IRS that kills mosquitoes and other insects that come into contact with the residual insecticides, especially in situations where mosquitoes have built resistance to insecticides used for ITNs.

### 7.6.2. Under the "international lens": the role and influence of organisations and companies in the malaria fight

How critical are the influences of international organisations and companies in the fight against malaria in developing countries like Ghana? How has structures, funding requirements and political interferences catalysed policy formulation and implementation of health care policies aimed at mitigating and eradicating malaria? At the heart of these questions are the influences that organisations and companies, mostly through funding, control the way malaria and general health care policies among U5 are implemented. The IRS has proven to be an effective vector control intervention across Europe and other countries that have been declared malaria-free (Pryce, Medley & Choi, 2022). In Sri Lanka, for instance, IRS was the principal malaria vector control intervention for decades till the country became malaria-free in 2013 (Sivabalakrishnan et al., 2019). The reality is that IRS malaria intervention has not been realised in Ghana, although the intervention has continued to appear in all national malaria policies and programmes since the 1990s. The study findings have shown that the IRS intervention implemented by NMCP in partnership with PMI and Global Fund occurs in a few districts in the country. Among the four districts investigated, the IRS was only implemented in the Obuasi

municipality, via a private sector initiative by AngloGold Ashanti, a global gold mining company, headquartered in Johannesburg, South Africa.

With evidence of its success in eradicating malaria in other countries, policy actors would have been expected to give the IRS intervention the needed policy attention and implement it full-scale across the country, just like the ITN intervention. But this has not been the case. It is, therefore, not surprising that Nkegbe et al. (2017) and Afudego (2011) posit that there is a need for research into what influences the decision of the government of Ghana to consider policy toward malaria treatment which is more costly than prevention. This paradoxical situation could be because of significant impact and influence international organizations have on Ghana's health system (Yeboah, 2011; Parkhurst et al., 2021). They indeed provide much needed funding, technical support, and policy guidance. Ghana, for instance, receives financial support from organizations like the World Bank and the IMF, which is used for infrastructure, education, and health initiatives. Khan et al., (2018) indicate that donor funding is recognized to have implications for local political agendas and priorities. In their studies, Parkhurst et al. (2021) reveal how current or former officials working within Ministry of Health programme offices posit that donor priorities within malaria control were not always aligned with local realities or needs. The Global Fund application processes, for instance, require countries to have an updated Malaria National Strategic Plan—from in which objectives and key activities are prioritized and funding requested through a country Global Fund concept note. A Malawian official recounted that the Global Fund preferred to fund commodities, with little interest in funding behaviour change programmes needed to make them work (Parkhurst et al., 2021).

Funding is often tied to specific criteria and requirements set by the donors, leading Ghana to prioritize aligning its policies with donor preferences rather than addressing local needs. This can in many cases be problematic in the long term. Ghana also tailors its policies to meet the requirements of funding agencies, further diverting attention from local priorities. The funding specifications and conditions can create imbalances in the healthcare system, as they may not consider the holistic view of Ghana's healthcare needs. Technical support and policy guidance from international organizations also tend to prioritize donor interests over local healthcare policies (Parkhurst et al., 2021). Donors also influence Ghana's healthcare system through

capacity building, but this is often focused on specific projects rather than the overall needs of the system. Donor nations and organizations entice Ghana to participate in global health initiatives, but these initiatives may not align with Ghana's healthcare system and structures. The influence of donors on Ghana's healthcare policies is therefore significant, as the funding comes with terms and conditions that may affect healthcare infrastructure, pharmaceutical regulations, and overall governance. These and other reasons account for a lack of a nationwide IRS intervention.

The absence of the IRS intervention has led to mothers relying on insecticide sprays and mosquito coils produced and sold by pharmaceutical companies, which come at expensive cost, especially to people in rural areas. Both external and internal pharmaceutical companies that produce mosquito insecticide sprays have a huge market in Ghana, considering the prevalence of malaria in the country. It could, therefore, be argued that the lack of implementation of the IRS enriches these pharmaceutical companies. This is because the sale of these products over the years has not significantly reduced malaria prevalence in the country. Pharmaceutical companies who are major policy actors in health policy formulation and implementation have their centre of attraction in malaria interventions and would probably only support any course of action that maximises their interests and preferences. In Ghana, such companies significantly influence health policy formulation and implementation (Koduah et al., 2022). It can, therefore, be argued that the survival of many pharmaceutical companies is hinged on the prevalence of malaria in Africa. Therefore, it is unsurprising that more emphasis has been placed on malaria treatment than prevention interventions. In his work, Yeboah (2011) attributed the policy 'implementation deficit' on malaria in the African region to actors (companies) who manufacture ITN's and ACTs to Africa for malaria treatment instead of focusing on prevention programmes. In 2018, about 197 million ITNs and 214 million ACT treatment courses were delivered, of which 98% were in the WHO African Region (World Health Organization, 2021b). Therefore, the critical question is how these companies (mainly US-based) will survive if policy interventions to combat malaria succeed. And rightly so, the deep-seated interests of global actors, as well as the national and global institutional arrangements through which malaria control is funded and implemented, all influence how national actors respond to malaria (Parkhurst et al., 2021). (Parkhurst et al., (2021) strongly argue that indeed malaria funding is concentrated into a small number of lenders, but a

large number of implementers. This could impede the autonomy of countries and the efficacy of their policies and programmes.

### 7.6.3 Health Governance Structure, Power Relations and Actors' Participation in Health Policy Formulation and Implementation

The study has shown that health system governance in Ghana comprises various actors ranging from key policymakers at the national and district levels, such as the MoH, GHS, and Regional and District Health directorates, to Other non-state actors, such as international partners and agencies such as WHO, PMI, and Global Fund, have played a significant role in policy formulation and implementation concerning malaria eradication in the country. District hospitals, Health centres and CHPS mainly undertook primary health care delivery for malaria eradication at the district level. Private health care providers such as private hospitals, clinics, pharmacies, or drug stores were equally crucial in treating malaria among children U5. Other community actors, such as traditional leaders, religious leaders and mothers of children U5, had key roles in tackling malaria.

However, a notable finding of the study was the lack of participation or involvement of district and community-level actors in policy formulation and implementation. It was the case that the hierarchical structure of the health system enforces a top-down policy implementation dynamic which curtails the participation and discretion of lower-level health bureaucrats, such as district directors, doctors, nurses, pharmacists, and district chief executives, and other relevant non-state actors (private health providers, chiefs, religious bodies, and mothers). It is commonplace in Ghana that top policymakers formulate policies without clearly understanding the social problem that the policy seeks to address because inputs from beneficiaries of the policy are mostly never considered (Koduah et al., 2015; Mohammed, 2020). This dynamic has largely affected the successful implementation of malaria health policies.

The decentralised governance structure of the health system in Ghana, on paper, is expected to encourage local development, with regional and district health directorates having some discretion in policy implementation. However, in practice, just as policy agenda setting and formulation are highly centralised, implementation decisions of health policies are also

centralised at the national level. The MoH mandated to formulate health policies tends to wield significant influence in implementing these policies at the district level. Discretionary power by regional and district-level directorates in amending policy directives to meet local conditions is usually missing.

The constant reliance of regional and district directorates on central directorates for financial and other resource support per legislative arrangements subjects these directorates to the whims and influences of political actors at the top echelons of the health governance structure. The need to garner political votes influences health resource allocation decisions without recourse to specific local needs of health facilities at the district and community levels. Implementing existing policies initiated by the previous government suffers after the change of government in situations where successful implementation of such policies would make the previous government popular (Skillman et al., 2022). Whilst (Carbone, 2011) has underscored the importance of political competition in leading to the formulation of good health reforms in Ghana, Appiah and Abdulai (2017) have established that competitive clientelism and patronage tendencies created as a result of political competition between the two dominant political parties New Patriotic Party (NPP) and National Democratic Congress (NDC) have curtailed to a large extent the success of policy implementation in the country. As argued by (Koduah et al., 2015), the change of political government might put outstanding policy intervention at risk due to the "winner takes all" system, which accords newly elected government state power and access to material resources. Policy implementers may be changed in a democratic political environment when a new political party gain control. Thus, elections in Ghana create winners and losers, and only people and institutions directly connected to political parties Thus, elections in Ghana create winners and losers, and only people and institutions directly connected to political parties based on their level of support and activism tend to benefit (Anaman & Bukari, 2020).

Therefore, the impact of politics formulating and successfully implementing health policies cannot be overemphasised.

### 7.6.4 Institutional and Policy Shortcomings Hindering Effective Implementation of Malaria Health Policies

A critical component of policy implementation and a functioning health system governance is allocating adequate financial, human and logistic resources. As evident in the study, the implementation of malaria health policies in Ghana has been constrained by insufficient financial, personnel and logistic resources. As revealed in the study, there are apparent regional disparities and inequalities in health provision across the country. Allocation of health resources in terms of personnel, finance, and logistics is skewed to urban centres and regions based on the preference of political actors. The formula for resource allocation in the health sector is based on 1) a uniform amount to cover administrative expenditures and 2) a need-based component that considers factors such as population, number of health facilities, and distance from the national capital (Julius Gatune et al., 2021). However, evidence from the study suggests that health resources are mostly not allocated based on this formula but instead based on political preference to score political points or to express gratitude to regions for their votes (Mohammed, 2020).

As a result, budgetary allocation to regional, district-level facilities is not predominantly based on their specific needs. Lack of adequate financial resources, health personnel and logistics cut across many district and local health centres, especially in rural areas (Dalinjong et al., 2018). As discovered by the study, funding or budgetary support by international organisations and partners in implementing malaria health policies has declined. As noted by (Shretta et al., 2020), the decline of financing by international organisations and donors can potentially increase clinical malaria cases by 38.2% and deaths by 2500. This suggests that the government needs to meet the financial gap domestically to achieve desirable results in the fight against malaria, especially among U5. However, the general revenue mobilisation challenges by the government, coupled with the current economic downturns, present a gloomy picture of the government's ability to provide adequate financing to tackle malaria in the country.

The lack of adequate health personnel in many health facilities at the district level was found to be another key institutional constraint to effective health care delivery. Just as evident in the study findings and those by previous studies (Akweongo et al., 2021; Atitsogbui & Amponsah-Tawiah, 2019; Nyarko & Cobblah, 2014), many health workers refuse postings to primary healthcare facilities in rural areas due to the lack of adequate and appropriate health facilities and

infrastructure. As a result, health care workers distribution in Ghana is predominantly skewed to urban regions. The poor work environment in most district and sub-district health facilities makes it difficult for qualified healthcare workers in rural areas. These dynamics have contributed to poor health service delivery and adverse malaria health outcomes among U5 at the district and community levels.

### 7.6.5 Theoretical Implications

The study examined the research objectives in line with the policy cycle theory, political economy and right-based theory. The study established that health policymaking reflects the top-down approach where policy decision-making is centralised at the top echelon of government without the input of lower-level bureaucrats and other actors. As evident in the study, this elitist and top-down approach to policy-making gives undue power and control to policymakers on how the policies are to be implemented without the discretion of lower-level actors who thoroughly understand the public problem and are the actual implementers of the policies. This finding aligns with the theoretical standpoint of the top-down and bottom-up approaches to policy implementation (Hjern & Hull, 1982; Lipsky Micheal, 1980; Pressman & Wildavsky, 1984). The results of the first hypothesis, which clearly show that the hierarchical structure of Ghana's health system inhibits the participation of actors at the lower level of the structure, support the propositions of the bottom-up policy theorists (Lipsky Micheal, 1980). Although the policy cycle theory was developed within the context of developed countries, it has evidence that the theory can be applied comprehensively to analyse Ghana's health policy environment. The study, therefore, contributes to the policy cycle theory and the body of knowledge and literature on health policy formulation and implementation.

The study findings also show that adopting the political economy theory to understand the power play among the various actors involved in the health policy stream was in the right direction. The study has revealed that politics affect the health policy environment. It has been evident that the interests of political actors are paramount in health policy formulation and implementation. Health policies that advance the ruling government's political interests can receive the required budgetary support compared to policies initiated by the previous political parties. In line with postulations by the political economy theory, the health sector is a highly contested arena with

competing interests by political actors, public bureaucrats, primary health care actors, private health care providers, and interest groups seeking to maximise their interests based on their choices.

The study further makes some contributions to the rights-based theory. The study findings reveal that the health sector is governed by several legislations and laws that ensure that the government safeguards the health of citizens. Moreover, as a signatory to various international conventions and agreements governing health, it is the government's responsibility to implement policies that promote the populace's health. As the rights-based theory advances, the government is responsible for formulating and implementing appropriate policies that increase people's health. The study findings have shown that although the government have implemented some policies to promote health care delivery, more is required to safeguard the rights of people to participate in health policy decisions and implementation as well as their rights to enjoy quality health care that is available, accessible and acceptable (Yamin & Frisancho, 2015). The U5 malaria mortality trend suggests that the rights of children U5 to enjoy quality health care are not being safeguarded to a greater extent.

## 7.7 Limitation

The study did not include fathers (men) in the field survey, even though fathers play an essential role as the head and are mostly breadwinners in the family structure in Ghana. The importance of fathers in parenting in Ghanaian family life cannot be underrated. Culturally, in Ghana, early childhood caretaking is the prime responsibility of mothers or women. This is particularly the case with rural settlers, where traditional norms, values and culture are at the heart of the community. However, fathers are not entirely out of the earlier childhood care because they provide the necessary security to the family, especially during pregnancy and early childbirth. Fathers must provide for the family's basic needs to ensure unity and cohesion. Fathers, as a symbol of virtue, are responsible for ensuring the sustainable economic, social and physical well-being of the child and the mother and the psychological well-being of children in Ghana. Fathers are the main backbone and authority of the family. They are responsible for exerting discipline and shaping their children in society.

Even though Ghanaian society is adapting to changes in modern times, more women are now being educated and becoming economically strong and independent. Women can equally support and provide for some basic needs of the family. The mother's prime responsibility is caring for the family and babies. If the woman dies through birth or post-natal circumstances, the father will call on his family (sister, mother, aunt, etc) or a responsible woman to care for the baby. This is how vital motherhood is in early childhood in Ghanaian society. This notwithstanding, the father's role in earlier childhood, especially the first 1000 days, has been noted to be a critical element in a child's brain development (UNICEF, 2022). It argued that fatherhood does not just reduce child poverty. It also adds happiness and life satisfaction to children as well as reduces children's psychological stress in the long term.

Therefore, future research must consider the role of males as a critical determinant of malaria-driven under-five mortality in Ghana and other parts of the world.

Also, most women were not cooperative, especially those the researchers met at the maternity wards of different hospitals. Health providers and some government level actors were also not ready to answer some questions due to the sensitivity of health data and the fear of losing their job.

Based on the importance of this policy healthcare issue, it is a step in the right direction that a future comparative study is undertaken to establish the comparative causal factors and issues that drive the prevalence of malaria among children under-five in different districts and regions in Ghana. This doctoral study did not delve deeper into the core comparative analyses of the selected case districts. While this is a limitation, it is an opportunity for future academic research work, too.

# 8 CONCLUSION AND RECOMMENDATIONS

## 8.1 Conclusions

*"We shall measure our progress by the improvement in the health of our people… The welfare of our people is our chief pride, and it is by this that (we) ask to be judged" – Kwame Nkrumah, first president of Ghana (1969).*

From the above quote, the vision of Ghana's first president encapsulates the contemporary aim of any healthcare policy. An effective health system can be viewed as a precondition for social and economic development and transformation. No country has progressed without an effective health system.

This study investigates the implications of policies, actors, and public institutions' interactions in addressing malaria disease among children U5 in Ghana, emphasising four districts in the country. The study obtained secondary and primary data using both descriptive and empirical analyses. Similarly, quantitative and qualitative data are used. Specifically, secondary data for analyses span the period 2000-2019. Questionnaires and interviews were conducted with 241 respondents in four districts in Ghana to obtain detailed and first-hand information on policy formulations, actors' interactions, and U5 health outcomes.

The risk or limitation of implementing the malaria intervention, as seen in the study, is linked to internal and external factors. Dealing with health issues in Ghana needs clear priority settings and standard guidelines that place all the necessary institutions and actors in one basket at the conceptual level of the policy. This is even more serious as malaria continues to kill. One's health and life are human rights; no one should die at a younger age due to any cause like malaria.

This is unacceptable that, to date, the world is still struggling with malaria, one of the oldest and most dangerous diseases. Malaria is the number one killer of U5 in most developing countries. With most policy interventions and proposals, one could have thought malaria should have been on its way out of the world, but the evidence shows we are back to the same point as 2000 and 2020 recorded similar malaria cases. Although Ghana has implemented malaria health policies, the disease is a nightmare for children U5. Nevertheless, the country's U5 mortality in general, and with malaria in particular, has been drastically reduced relative to the SSA sub-region.

The OLS regression results from the secondary data indicate that domestic government health expenditure, clean drinking water, women's employment, neonatal mortality, low birth weight, adolescent fertility, anaemia, and pneumonia impact children's U5 mortality in Ghana. Similarly, government health expenditure, drinking water, malaria infection prevalence, insecticide-treated nets, and overweight and stunted affect U5 malaria mortality in the country. With reference to the first hypothesis, the finding shows that the relationship between health expenditure, women's employment, neonatal, low birth rate, portable water, adolescent fertility, anaemia, pneumonia, malaria incidence, children overweight, stunting, insecticide-treated bed nets and maternal deaths and U5 mortality, especially from malaria in Ghana, statistically significant at appropriate levels. Nonetheless, the findings failed to reject the null hypotheses that there is no relationship between maternal mortality ratio, malaria cases, pneumonia and children U5 mortality in Ghana.

There are some mixed results in the four districts under study. The findings further show that mothers' marital status, duration of living in the area, seeking healthcare for the children, frequency of malaria cases, difficulty in accessing health services, and access to mosquito nets explain variations of U5 mortality from malaria in some of the districts under study, statistically significant at certain levels and directions. Regarding the second hypothesis, the findings reject the hypothesis that there is no relationship between age and mothers' marital status, quality of services provided by the NHIS, amount of money spent on malaria infection, difficulty in accessing healthcare, transport system and U5 mortality from malaria in the districts in Ghana. Nevertheless, the findings failed to reject the null hypothesis in some variables in some districts, especially in Ada West.

The findings have shown that current health policies to tackle malaria among children U5 include NHIS, ITNs, IRS and ACTs. There were apparent discrepancies between policy intent and actual implementation, especially concerning the NHIS. Moreover, the study identified that the wide range of actors in health policy formulation and performance had not been accompanied by adequate involvement in decision-making in health care. The country's health system's decentralised governance structure has not lived up to the expectations that characterised its creation. The top-down approach to policy formulation and implementation may have hampered participation by all stakeholders in the decision-making process. However, it has also centralised power and decision-making concerning finance, personnel, logistics and other resources at the

national level. In addition, malaria remains a prevalent disease among children U5, contributing significantly to U5 mortality.

In a nutshell, although slight progress has been in reducing malaria prevalence and mortality since 2000, interactions between policies, institutions, and actors have improved U5 malaria health outcomes in the four districts investigated and, by a stretch, the country. However, the implementation of the policy interventions was proven to be a challenge. The health system is complex and involves other sectors (See: Figure 4-2). International actors' interferences, inappropriate attitudes by some healthcare professionals, delays (sometimes denial) of the government to reimburse health providers, unequal distribution of resources (finances, human resources, health facilities etc) and the centralized of all actions (political power dynamics) in the health institutions were seen as a factor for some U5 death and complications. Using the definition described by Baum et. al. (2007) in their study, it was observed: "public health practitioners may lack the experience, time, resources (including training), or even motivation to consider ethics in their daily work deliberately". However, ensuring the ethical code of any institution and actors means getting to obey 'what is right and doing it right'.

Much of politics (especially political elites) influence institutions' activities in Ghana. The democratic political regime of Ghana has extensively interacted with the policy implementation process. Koduah et al. (2015) argued that a change of political government might put outstanding policy intervention at risk or improve it. Ghana's democratic system has been classified as "winner takes all". Policy implementers maybe change in a democratic political environment as a new political party gains power. This is clear in tables 7-9, as the government's ideology of the day has greatly influenced most health finance (NHIS) policy reforms. In the case of Ghana, with high-level rural dwellers, relatively poor infrastructure and inequality in livelihood (poverty), the establishment of the NHIS policy was a bold decision taken by the government (NPP). From the discussion, most health institutions are not trusted because of the high political involvement. Those who set rules are the same actors who often disrespect or refuse to apply the rules. Every sovereign state needs strong, trusted, independent institutions without political involvement to enhance economic development. The policies these institutions will put in place will hold the political actors and their will (commitment) in check, do away with intermediaries, and push the political will in motion and checks. The influence of international actors, particularly funding

bodies, is noticeable in the fight against malaria. (Parkhurst et al., (2021) argue how priorities of funding agencies may differ from the priorities of countries. These divergent priorities inhibit the proper functioning of state institutions and in general achieving a good outcome in the fight against malaria among U5.

Also, values are essential expect of policy. Arguably, actors' actions are based on their values which influence their decisions and position in the policy process. Therefore, policy analysts must pay attention to the weight of significance in policy analysis, especially in a democratic society. Because the values associated with democracy and bureaucracy are often in competition and policies are often contested or (challenged) between the various actors based on their interests, policy administrators must arrive at a workable balance consistent with other moral considerations and constitutional traditions.

Health is about political commitment and choices. Therefore, it goes beyond health but an effective institution, good governance, which focuses on collaboration, finance, infrastructure and logistics, health workers, effective policy and strategies. Improving child health care outcomes must focus on all state and non-state sectors since health is well understood as a multi-sectorial function. In Ghana, early childhood death and related child health problems might persist if an adequate and potent public healthcare system is not well established. As Kickbusch (2014) argues:

> "Public health action at this point will require a mind shift towards a new political and social movement for health, which addresses the social, commercial and political determinant of health."

## 8.2 Policy Recommendations

There is a need to develop a functioning health system governance that creates an avenue for effective participation and collaboration between the government and the rest of society at the national, regional and local levels in the formulation and implementation of health policies that ensure that quality health care is available, accessible, and acceptable to safeguard the health of all individuals in the country.

Primary healthcare facilities must be adequately resourced regarding personnel, logistics and funding to provide quality healthcare delivery to the populace. This could only be realised when child health care is treated as a human right issue to attract much political commitment and urgency to tackle all health issues that seek to increase U5 mortality in the country.

Achieving significant positive outcomes concerning malaria among children U5 would greatly depend on building and maintaining the social relations that ensure sustained resource redistribution through strategic policy, reliable funding, effective institutions, and including actors and socially marginalized population groups in all decision-making activities.

In addition, there is a need for more attention on interventions that seek to prevent malaria than overspending and focusing on treating the disease. More resources should be directed at vector control activities across all districts in the country (IRS and distribution of ITNs) and social and community programmes that seek to promote sanitation and other positive behaviours that would reduce the growth and prevalence of mosquitoes in communities.

Effective collaboration among all key actors towards achieving collective health goals through interactions during the policy formulation and implementation phases is paramount to the success of malaria interventions in the country. For health system governance to effectively operate and be beneficial to Ghanaians in the eradication of malaria, a wide range of actors such as politicians, public bureaucrats, health professionals, public and private health facilities, civil society organisations, pharmaceutical organisations, NGOs, private companies, traditional leaders and citizens need to collaborate extensively towards finding a long-lasting solution to health problems such as the malaria menace.

There is an urgent need to blend top-down and bottom-up approaches to include all relevant actors in health policy-making. Such a blend could be achieved by the top bureaucrats creating opportunities that ensure beneficiary communities' engagement and the involvement of community leaders, especially the traditional rulers and religious leaders such as kings, chiefs, pastors, and Imams (in the case of the minority Muslims), in health policy formulation and implementation process. These actors influence the populace and understand their health needs and wants. It would be in the government's and policymakers' interest to involve them, especially in the decision-making and policy implementation phase. Engaging and involving these actors would help drive policy implementation towards set policy goals and outcomes. Moreover, it creates a platform of collaboration for top bureaucrats, community actors, and beneficiaries to assess policy implementation performance—feedback from such collaborations aids in monitoring policy implementation, adjustment and change.

To ensure the success of health policy implementation, political leaders and top bureaucrats must promote and support decision-making and implementation by the various actors at the regional and district levels of the health system. Considering Ghana's decentralised health governance system, there is a need for distributed leadership to allow bureaucratic leaders across the regional and district health administration levels some influence, autonomy and discretion in policy decisions and implementation rather than the centralised command-and-control approach to policy formulation and implementation that prevail in Ghana's health system.

Addressing U5 malaria health issues requires more robust mechanisms that ensure that policies are not driven by the interests of political leaders and top bureaucrats but rather by public interest. There is a need to re-engineer the policy process to allow for ideas from frontline bureaucrats and the public and a system that ensures that top policymakers are held accountable for policy outcomes. Expanding decision space for state and non-state policy actors at the subnational level is critical to the efficient and effective implementation of health policies.

Education is very crucial. Most mothers did not understand health policies and their implications. More health awareness campaigns and sensitisation on child health issues and policies should be organised and promoted periodically across various media platforms, such as radio and television.

The government needs to involve the private sector to upscale the nationwide distribution of free ITNs. Efforts should be made to end the commercialisation of ITNs by some policymakers, which should be given freely to mothers. This, however, inhibits the success of the policy intervention by some of the very policy implementers (key actors). Firm legislation needs to be put in place to punish wrongdoers.

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# 10 APPENDIX

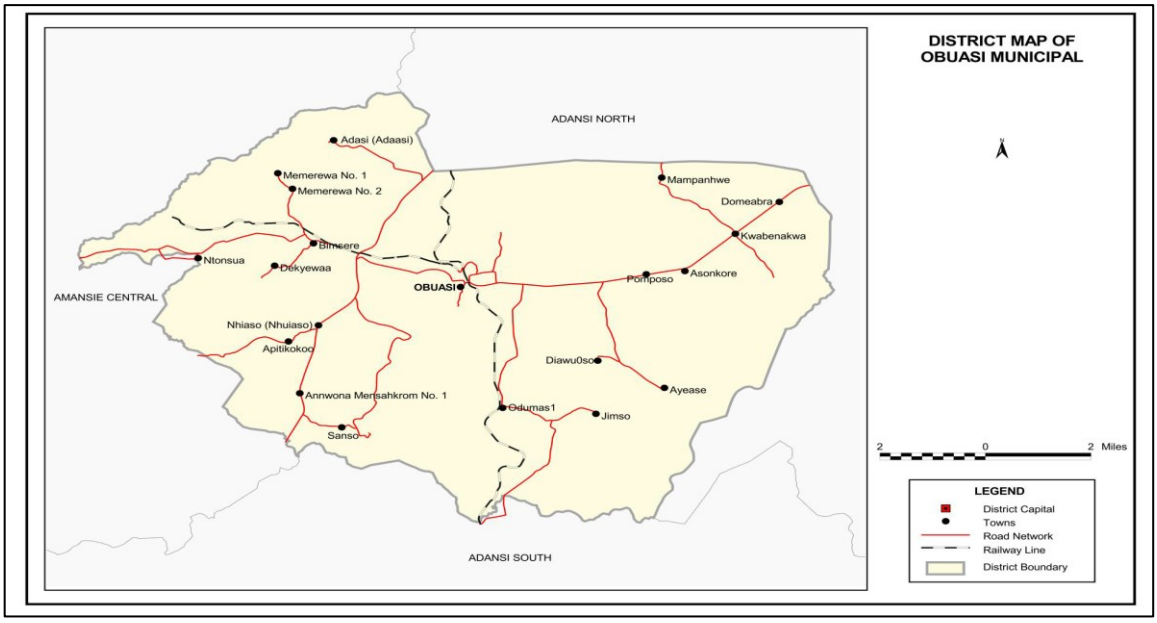
Appendix 1.0 **Comparison of determinants of U5 malaria mortality across the four districts** (Table)

| | ***Signs/outcomes*** | | | |
|---|---|---|---|---|
| **Variable/District** | **Mpohor** | **Ada West** | **Obuasi** | **Kassena-Nankana East** |
| Q1 age of mothers | No statistically significant difference between the variables | Positive relationship<br>***Implication***: Young mothers are likely to lose their U5 children to malaria | Positive relationship<br>***Implication***: Young mothers are likely to lose their U5 children to malaria | Positive relationship<br>***Implication***: Young mothers are likely to lose their U5 children to malaria |
| Q2 marital status of mothers | Positive relationship<br>***Implication:*** Some women struggle to meet their children's health needs even when married due to poverty | No statistically significant difference between the variables | No statistically significant difference between the variables | No statistically significant difference between the variables |
| Q3 years lived in the district | Negative relationship<br>***Implication:*** The longer mothers live in the area, the more minor the probability they lose their children due to malaria, holding other factors constant | No statistically significant difference between the variables | Negative relationship<br>***Implication*:** The longer mothers live in the area, the more minor the probability they lose their children due to malaria, holding other factors constant | Positive relationship<br>**Implication:** The longer mothers live in the area the high probability of losing their children to malaria holding other factors constant |
| Q4 NHIS quality service | No statistically significant difference between the variables | Negative relationship<br>***Implication:*** The more NHIS provide quality services for malaria treatment, the less the probability of them losing their children due to malaria cases, holding other factors constant | Negative relationship<br>***Implication:*** The more NHIS provide quality services for malaria treatment, the less the probability of them losing their children due to malaria cases, holding other factors constant | Negative relationship<br>***Implication:*** The more NHIS provide quality services for malaria treatment, the less the probability of them losing their children due to malaria cases, holding other factors constant |

| | | | | |
|---|---|---|---|---|
| Q5 amount spent on healthcare | No statistically significant difference between the variables | Negative relationship<br>***Implication:*** The more mothers spend on healthcare, the less the probability of losing their children due to malaria, holding other factors constant | No statistically significant difference between the variables | Negative relationship<br>***Implication:*** The more mothers spend on healthcare, the less the probability of losing their children due to malaria, holding other factors constant |
| Q6 always seek healthcare | Negative relationship<br>***Implication:*** The more mothers seek healthcare for malaria treatment, the less probability they lose their children due to malaria cases, holding other factors constant | No statistically significant difference between the variables | Negative relationship<br>***Implication:*** The more mothers seek healthcare for malaria treatment, the less probability they lose their children due to malaria cases, holding other factors constant | No statistically significant difference between the variables |
| Q7 number of times had malaria | Positive relationship<br>***Implication:*** The more the children experience malaria, the more the chances of them dying from the disease, as some may not survive it, holding other factors constant | Negative relationship<br>***Implication:*** The fewer children experience malaria, the more the chances of them dying from the disease, as some may not survive it, holding other factors constant | Positive relationship<br>***Implication:*** The more children experience malaria, the more the chances of them dying from the disease, as some may not survive it, holding other factors constant | No statistically significant difference between the variables |
| Q8 difficulty in accessing healthcare | Positive relationship<br>***Implication:*** The more it is challenging for mothers to access malaria treatment, the more children U5 may die from the disease in the district | No statistically significant difference between the variables | Positive relationship<br>***Implication:*** The more it is challenging for mothers to access malaria treatment, the more children U5 may die from the disease in the district | No statistically significant difference between the variables |
| Q9 easy access to health care | Negative relationship<br>***Implication:*** The easier it is for the mothers to access health facilities for malaria treatment, the less the probability of them losing their children due to malaria | Negative relationship<br>***Implication:*** The easier it is for the mothers to access health facilities for malaria treatment, the less the probability of them losing their children due to malaria | No statistically significant difference between the variables | Negative relationship<br>***Implication:*** The easier it is for the mothers to access health facilities for malaria treatment, the less the |

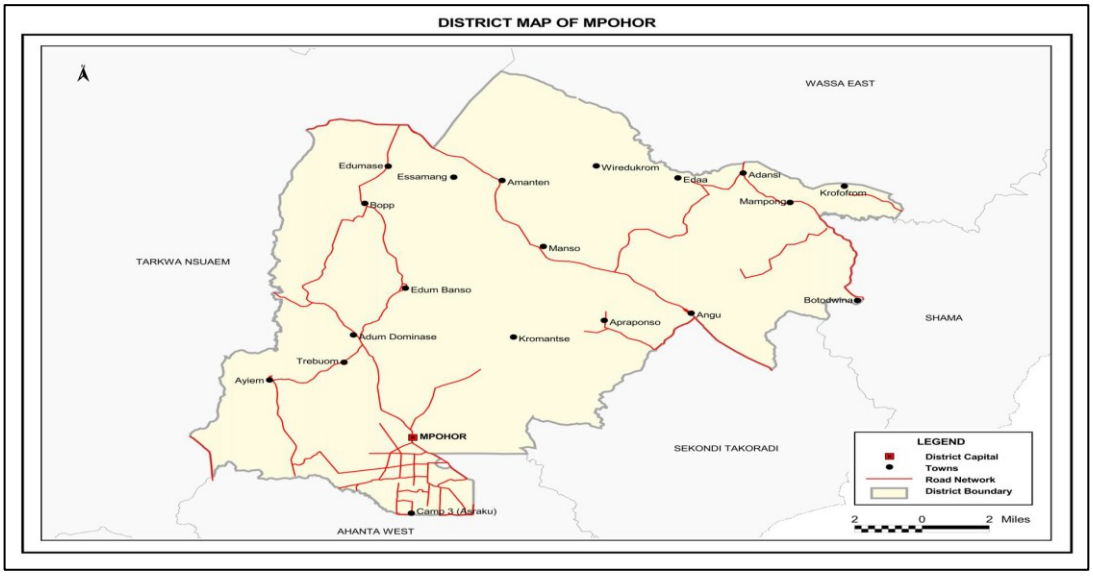
| | | | | |
|---|---|---|---|---|
| | cases, holding other factors constant | cases, holding other factors constant | | probability of them losing their children due to malaria cases, holding other factors constant |
| Q10 lack of access to mosquito nets | Positive relationship<br>***Implication:*** More children U5 are likely to die from malaria if they not sleep under mosquito nets | No statistically significant difference between the variables | Positive relationship<br>***Implication:*** More children U5 are likely to die from malaria if they do not sleep under mosquito nets | No statistically significant difference between the variables |
| Q11 lack of insecticides | Positive relationship<br>***Implication:*** More children U5 may die if mothers or families cannot afford to buy insecticides for use in the area | No statistically significant difference between the variables | Positive relationship<br>***Implication:*** More children U5 may die if mothers or families cannot afford to buy insecticides for use in the area | Positive relationship<br>***Implication:*** More children U5 may die if mothers or families cannot afford to buy insecticides for use in the area |
| Q12 affordable transport system | No statistically significant difference between the variables | No statistically significant difference between the variables | Negative relationship<br>***Implication*:** The more the affordable transportation system in the area, the less the chances of them dying from the disease as they could easily visit a hospital when needed | No statistically significant difference between the variables |

Appendix 2.0: **Map of Obuasi Municipality (Map)**



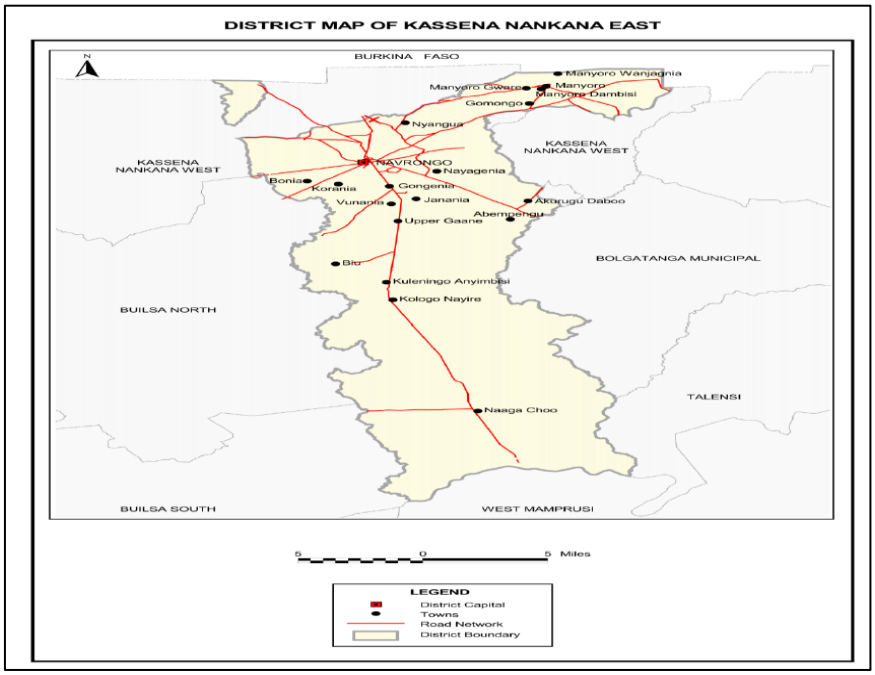

**Source: Ghana Statistical Service (2010)**

Appendix 3.0: **District Map of Mpohor (Map)**



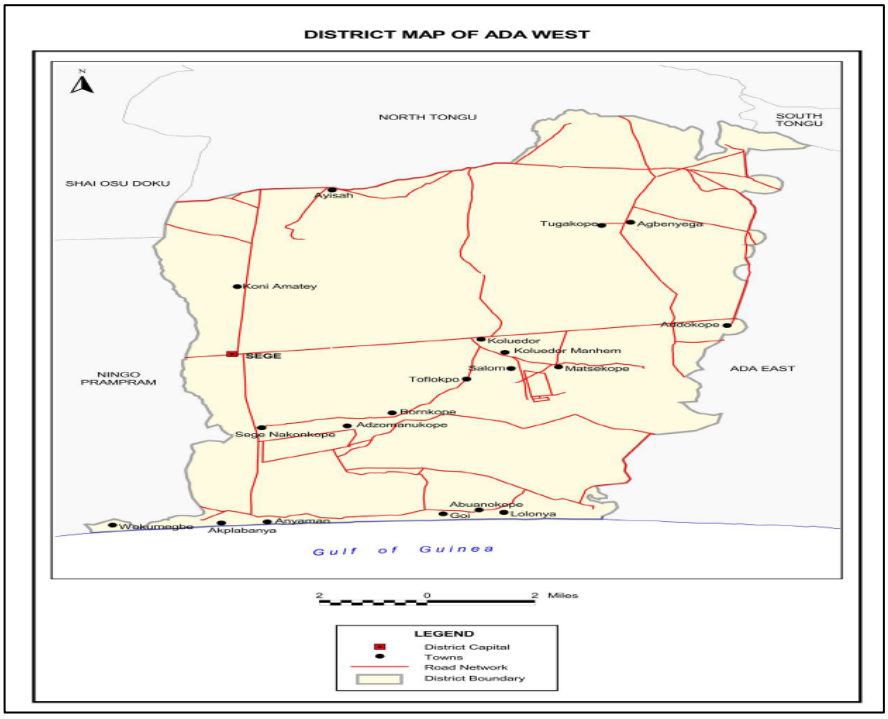

**Source: Ghana Statistical Service (2010)**

Appendix 4.0: Map of **Kassena-Nankana East Municipality (Map)**




**Source: Ghana Statistical Service (2010)**

Appendix 5.0**: District Map of Ada West (Map)**




**Source: Ghana Statistical Service (2010)**

Appendix 6.0: **Support Letter from Ministry of Health Ghana (Letter)**

REPUBLIC OF GHANA

MINISTRY OF HEALTH

P.O. Box MB44, Accra
Digital Address: GA-029-4296
Kindly quote this number and date on all correspondence
My Ref. No: MOH/PPMED/HS2022
Your Ref. No. _____
**DATE. 30th May, 2022**

**AS PER DISTRIBUTION**

**SUPPORT LETTER FOR CONDUCT OF DOCTORAL RESEARCH BY MS. MARTHA AMOAKO**

The Ministry of Health writes to introduce Ms. Martha Amoako, a Doctor of Philosophy (PhD) candidate at the Social and Public Policy Department of the Charles University Charles University in Prague to your organization.

Ms. Martha Amoako is conducting doctoral research on functional health system governance: The centrality of policies, institutions and actor's configuration in Ghana's health sector. As such, she will be visiting your agency or department to collect data and conduct interviews with officers whose responsibilities align with her research areas.

The Ministry therefore entreats your outfit to grant her the much-needed assistance during the entire data collection processes. Findings from her research work will be shared with the Ministry to improve health policy development and strengthening.

I count on your usual cooperation.

Thank you.

KWABENA BOADU OKU-AFARI
CHIEF DIRECTOR
FOR: MINISTER

Cc: Hon. Minister for Health
Hon. Deputy Ministers, MoH
Director, PPME – MOH


P.O. Box MB44, Accra
Digital Address: GA-029-4296

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Website: www.moh.gov.

Appendix 7.0: **Questionnaire (Survey)**

**QUESTIONNAIRE FOR MOTHERS**

As part of my doctoral research, I am conducting a study titled: *Towards a Functional Health System Governance: The Centrality of Policies, Institutions and Actors' Configuration in Shaping Ghana's Health Sector*. I would be very grateful if you could assist in providing answers to the following questions regarding the study. I assure you that any information provided will be given the strictest anonymity and confidentiality. Responses provided will be used solely for academic purposes. Your participation is voluntary.

Q1. Town

1. Mpohor 2. Ada West 3. Obuasi 4. Kassena-Nankana

Q2 Age: 1. 18 - 25years [ ] 2. 26 – 33 years [ ] 3. 34 - 41years [ ] 4. 42 – 49 years [ ]

Q3. Marital Status

1. Married 2. Not married 3. Widowed 4. Divorced 5. Single Mother

Q4. Highest Educational Level:

1. No formal Education 2. Primary level 3. Secondary Level 4. Tertiary level 5. Postgraduate

Q5. How long have you been in the district?

1—4years [ ]
5—9years [ ]
10—14years [ ]
15 years and above [ ]

Q6. How many children do you have?

Q7. How many children U5 do you have?

Q8. How many times do you seek for healthcare for your children U5 in a month?

Q9. Which sickness have your children suffered from most since you gave birth?

1. Malaria 2. Cough 3. Headache 4. Cold 5. Fever 6. Other

Q10. Do you always seek health care from the hospital when your children are sick?

1.Yes 2. No

Q11. How many times have your children suffered from malaria?

Q12. Did you seek malaria treatment from a health facility?

1.Yes 2. No

Q13. If yes, where did you seek health care?

1. District hospital [ ]

2. Health center
3. Polyclinic
4. CHPS [ ]
5. Private Hospital/Clinic [ ]
6. Drug Store [ ]
7. Traditionalist/Herbalist [ ]

Q14. Has any of your children died from malaria?

1Yes 2. No

Q15 If yes, how many?_____.

Q16. Are health care facilities easily accessible in your area? 1.Yes 2. No

Q17. Are health care facilities close to where you stay? 1. Yes 2. No

Q18. How long does it take for you to get to the closest health facility?____minutes.

Q19. How much do you spend to get to the closest health facility?_____

Q20. Are malaria drugs given to you at the hospital for treatment of your children effective?

1.Yes 2. No

Q21. Are malaria drugs affordable? 1.Yes 2. No

Q22. Are you satisfied with malaria treatment for your children provided by health care facilities in your area? 1.Yes 2.No

Q23.Are you a beneficiary of NHIS? 1.Yes 2. No

Q24. Have you benefited from the NHIS in seeking malaria treatment for your children?

1. Yes 2. No

Q25. Did you have to pay for drugs even with NHIS when seeking for malaria treatment for your children? 1. Yes 2. No

Q26. If yes, on average how much do you spend?_____cedis.

Q27. I use ITNs to prevent malaria at home. 1. Yes 2. No

Q28. I use INS to prevent malaria at home. 1. Yes 2. No

Q29. I use mosquito coil to prevent malaria at home. 1. Yes 2. No

Q30. I use electric fan to prevent malaria at home. 1. Yes 2. No

Q31. Does your religious or traditional belief restrict you from seeking health care for your children U5 at the hospital?

1. Yes 2. No

For the following statements indicate the extent to which you agree or disagree. Please indicate your response by ticking the appropriate alternative;
1= Strongly disagree, 2 = disagree, 3 = Neutral, 4 = Agree, 5 = Strongly agree.

| Statements | 1 | 2 | 3 | 4 | 5 |
|---|---|---|---|---|---|
| Q32.I am a beneficiary of NHIS | 1 | 2 | 3 | 4 | 5 |
| Q33.I have benefited from the NHIS in seeking malaria treatment for my children | 1 | 2 | 3 | 4 | 5 |
| Q34.I did not have to pay for drugs with NHIS when seeking for malaria treatment for my children | 1 | 2 | 3 | 4 | 5 |
| Q35.I was able to afford the drugs I was asked to buy even with NHIS | 1 | 2 | 3 | 4 | 5 |
| Q36.NHIS is available to me at the health facility I take my children to. | 1 | 2 | 3 | 4 | 5 |
| Q37.I do not struggle to renew my NHIS card after expiration | 1 | 2 | 3 | 4 | 5 |
| Q38.I receive quality health care treatment for my children through the NHIS | 1 | 2 | 3 | 4 | 5 |
| Q39.I have benefited from the distribution of mosquito nets by the government | 1 | 2 | 3 | 4 | 5 |
| Q40.I did not pay for the mosquito nets I received from government | 1 | 2 | 3 | 4 | 5 |
| Q41.Mosquito nets are easily available in my area when I need to get a new one | 1 | 2 | 3 | 4 | 5 |
| Q42.Mosquito nets are effective in preventing me and my children from malaria | 1 | 2 | 3 | 4 | 5 |
| Q43.I use insecticides to prevent malaria at home | 1 | 2 | 3 | 4 | 5 |
| Q44.Insecticides are not expensive to buy | 1 | 2 | 3 | 4 | 5 |
| Q45.Insecticides are easily available in pharmacies and stores in my area | 1 | 2 | 3 | 4 | 5 |
| Q46.Indoor spraying of insecticides are effective in preventing me and my children from malaria | 1 | 2 | 3 | 4 | 5 |
| Q47.Health care facilities are easily accessible in my area | 1 | 2 | 3 | 4 | 5 |
| Q48.Health care facilities are close to where I stay | 1 | 2 | 3 | 4 | 5 |
| Q49.I don't spend much on transportation to health facility | 1 | 2 | 3 | 4 | 5 |
| Q50.Malaria drugs are affordable | 1 | 2 | 3 | 4 | 5 |

| | | | | | |
|---|---|---|---|---|---|
| Q51.Health center in my area have adequate skilled health personnel | 1 | 2 | 3 | 4 | 5 |
| Q52.Health center in my area have adequate facilities and equipment | 1 | 2 | 3 | 4 | 5 |
| Q53.Malaria drugs given to me at the hospital for treatment of my children are effective | 1 | 2 | 3 | 4 | 5 |
| Q54.I am satisfied with malaria treatment for my children provided by health care facilities in my area | 1 | 2 | 3 | 4 | 5 |
| Q55.In the past year my children have experienced malaria at least 3 times | 1 | 2 | 3 | 4 | 5 |

Appendix 8.0: **Interview Guide (Survey)**

## Ministry of Health

**Gender:** Male [ ] Female [ ]

**Age:** 20 — 29years [ ] 30—39years [ ] 40—49years [ ] 50years and above [ ]

**Educational Level:** Basic level [ ] Secondary Level [ ] Tertiary [ ] Postgraduate [ ]
Other (Please specify) ……

How long have you been in your current position?
1—4years [ ]
5—9years [ ]
10—14years [ ]
15years and above [ ]

1. What is the state of U5 child health in your opinion? What are the main causes of U5 child mortality in Ghana? How has malaria contributed to the current state of U5 child mortality? What has been the prevalence rate of U5 malaria health outcome over the past 15years (Statistics). Which region/district has the highest U5 malaria prevalence rate and U5 mortality, and why? What in your opinion are the main causes of U5 malaria prevalence?

2. What are the existing legislations and laws that govern and regulate the child health sector? What are the main processes involved in the agenda setting and formulation of health policies? Who are the key actors/stakeholders in the formulation of health policies? To what extent have all these actors been involved in the formulation of recent health policies on malaria? What are the specific health policies on malaria?

3. What is the state of implementation of these health policies across the regions/districts? What has been the impact of the implementation of these policies on U5 malaria health outcome? What are the key challenges confronting the implementation of these policies and regulations as far as U5 malaria health outcome is concerned?

4. How have political relations (political transitions) affected the implementation of health policies and regulations on child health? To what extent has the government been committed in addressing U5 malaria health outcome? How much have been allocated over the past 5years? Have budgetary allocations for U5 child health been enough?

5. What medicines have been mandated for the treatment of U5 malaria cases? To what extent have these medicines been effective for treatment of U5 malaria? Despite the existence and usage of all these medicines, why does U5 malaria health still persist? In your opinion, do you think more emphasis has been placed on treatment on malaria than prevention, and why?

6. What measures do you think should be put in place to reduce malaria incidence in the country?

## Ghana Health Service

**Gender:** Male [ ] Female [ ]

**Age:** 20 — 29years [ ] 30—39years [ ] 40—49years [ ] 50years and above [ ]

**Educational Level:** Basic level [ ] Secondary Level [ ] Tertiary [ ] Postgraduate [ ]
Other (Please specify) ……

How long have you been in your current position?
1—4years [ ]
5—9years [ ]
10—14years [ ]
15years and above [ ]

1. What is the state of U5 child health in your opinion? What are the main causes of U5 child mortality in Ghana? How has malaria contributed to the current state of U5 child mortality? What has been the prevalence rate of U5 malaria health outcome over the past 15years (Statistics). Which region/district has the highest U5 malaria prevalence rate and U5 mortality, and why? What in your opinion are the main causes of U5 malaria prevalence?

2. What are the existing legislations and laws that govern and regulate the child health sector? What are the main processes involved in the agenda setting and formulation of health policies? Who are the key actors/stakeholders in the formulation of health policies? To what extent have all these actors been involved in the formulation of recent health policies on malaria? What are the specific health policies on malaria?

3. What is the state of implementation of these health policies across the regions/districts? What has been the impact of the implementation of these policies on U5 malaria health outcome? What are the key challenges confronting the implementation of these policies and regulations as far as U5 malaria health outcome is concerned?

4. How have political relations (political transitions) affected the implementation of health policies and regulations on child health? To what extent has the government been committed in addressing U5 malaria health outcome? Have budgetary allocations for U5 child health been enough? How much have been allocated over the past 5years?

5. What medicines have been mandated for the treatment of U5 malaria? To what extent have these medicines been effective for treatment of U5 malaria? Despite the existence and usage of all these medicines, why does U5 malaria health still persist? In your opinion, do you think more emphasis has been placed on treatment on malaria than prevention, and why?

6. What measures do you think should be put in place to reduce malaria incidence in the country?

## District Chief Executive

**Gender:** Male [ ] Female [ ]

**Age:** 20 — 29years [ ] 30—39years [ ] 40—49years [ ] 50years and above [ ]

**Educational Level:** Basic level [ ] Secondary Level [ ] Tertiary [ ] Postgraduate [ ]
Other (Please specify) ……

How long have you been in your current position?
1—4years [ ]
5—9years [ ]
10—14years [ ]
15 years and above [ ]

1. What is the state of U5 child health in the district? What are the main causes of U5 child mortality in the district? How has malaria contributed to the current state of U5 child

mortality? What in your opinion are the main causes of U5 malaria prevalence in the district?

2. What are the existing legislations and laws that govern and regulate the child health sector? What are the main processes involved in the agenda setting and formulation of health policies in your district? Who are the key actors/stakeholders in the formulation of health policies? To what extent have all these actors been involved in the formulation of recent health policies on malaria? What are the specific health policies on malaria?

3. What is the state of implementation of these health policies in your municipality/district? What has been the impact of implementing these policies on U5 malaria health outcomes? What are the key challenges confronting implementing these policies and regulations as far as U5 malaria health outcome is concerned?

4. Do you think the district has an adequate number of healthcare facilities, a number of health personnel, medical supplies and other relevant equipment to provide quality health care especially for children?

5. How have political relations (political transitions) affected the implementation of health policies and regulations on child health? To what extent has the government been committed in addressing U5 malaria health outcome? Have budgetary allocations for U5 child health been enough? How much have been allocated over the past 5years?

## District Health Administrator

**Gender:** Male [ ] Female [ ]

**Age:** 20 — 29years [ ] 30—39years [ ] 40—49years [ ] 50years and above [ ]

**Educational Level:** Basic level [ ] Secondary Level [ ] Tertiary [ ] Postgraduate [ ]
Other (Please specify) ……

How long have you been in your current position?
1—4years [ ]
5—9years [ ]
10—14years [ ]
15years and above [ ]

1. What is the state of U5 child health in the district? What are the main causes of U5 child mortality in the district? How has malaria contributed to the current state of U5 child mortality? What has been the prevalence rate of U5 malaria health outcome over the past years? Which community has the highest U5 malaria prevalence rate and U5 mortality, and why? What in your opinion are the main causes of U5 malaria prevalence?

2. What are the existing legislations and laws that govern and regulate the child health sector in the district? What are the main processes involved in the agenda setting and formulation of health policies? To what extent have you been involved in the formulation and implementation of health policies on malaria? What are the specific national health policies on malaria implemented in your district? What specific health policies on malaria for the district have been initiated by your office?

3. Who are the stakeholders in the district involved in the improvement of child health in the district? To what extent do you involve and engage these stakeholders on malaria and other child health issues?

4. What is the state of implementation of health policies on malaria in the district? What has been the impact of the implementation of these policies on U5 malaria health outcome? What are the key challenges confronting the implementation of these policies and regulations as far as U5 malaria health outcome is concerned?

5. Do you think the district has adequate health care facilities, a number of health personnel, medical supplies and other relevant equipment to provide quality health care especially for children?

6. How have political relations (political transitions) affected the implementation of health policies and regulations on child health? To what extent has the government been committed in addressing U5 malaria health outcome? Have budgetary allocations for U5 child health been enough for the district? How much have been allocated over the past 5years?

7. What medicines have been mandated for the treatment of U5 malaria cases? To what extent have these medicines been effective for the treatment of U5 malaria? Despite the existence and usage of all these medicines, why does U5 malaria health persist? In your opinion, do you think more emphasis has been placed on treatment on malaria than prevention, and why?

7. What measures do you think should be put in place to reduce malaria incidence in the district?

## District Hospitals (Administrator)

**Gender:** Male [ ] Female [ ]

**Age:** 20 — 29years [ ] 30—39years [ ] 40—49years [ ] 50years and above [ ]

**Educational Level:** Basic level [ ] Secondary Level [ ] Tertiary [ ] Postgraduate [ ]
Other (Please specify) ……

How long have you been in your current position?
1—4years [ ] 10—14years [ ]
5—9years [ ] 15years and above [ ]

1. What is the state of U5 child health in the district? What is the annual child U5 mortality rate in your facility? What are the main causes of U5 child mortality in the district? How has malaria contributed to the current state of U5 child mortality in your facility? How many cases of U5 malaria cases do you record daily, monthly and annually? What is your opinion are the main causes of U5 malaria prevalence?

2. What are the existing policies, legislations and laws that govern and regulate the child health in the district? To what extent have you been involved in the formulation and implementation of health policies on malaria?

3. In your opinion what has been impact of the implementation of health policies on U5 malaria health outcome? What do you think are the key challenges confronting the implementation of these policies and regulations as far as U5 malaria health outcome is concerned?

4. As a facility, do you think you have adequate resources in terms of finance resources/ budgetary allocation, personnel, number of beds, medical supplies, and other facilities to provide quality health care delivery? What are your main challenges?

5. To what extent do you think political relations (political transitions) affected the implementation of health policies and regulations on child health in the district?

6. What medicines have been mandated for the treatment of U5 malaria cases? To what extent have these medicines been effective for treatment of U5 malaria? Despite the existence and usage of all these medicines, why does U5 malaria health persist? In your

opinion, do you think more emphasis has been placed on the treatment on malaria than prevention, and why?

7. What measures do you think should be put in place to reduce malaria incidence in the district?

## Chief Medical Officer and Matron of Nurses (District Hospital)

**Gender:** Male [ ] Female [ ]

**Age:** 20 — 29years [ ] 30—39years [ ] 40—49years [ ] 50years and above [ ]

**Educational Level:** Basic level [ ] Secondary Level [ ] Tertiary [ ] Postgraduate [ ]
Other (Please specify) ……

How long have you been in your current position?
1—4years [ ] 10—14years [ ]
5—9years [ ] 15years and above [ ]

1. What is the state of U5 child health in the district? What is the annual child U5 mortality rate in your facility? What are the main causes of U5 child mortality in the district? How has malaria contributed to the current state of U5 child mortality in your facility? How many cases of U5 malaria cases do you record daily, monthly and annually? What in your opinion are the main causes of U5 malaria prevalence?

2. What medicines have been mandated for the treatment of U5 malaria cases? To what extent have these medicines been effective for treatment of U5 malaria? Despite the existence and usage of all these medicines, why does U5 malaria health persist? In your opinion, do you think more emphasis has been placed on treatment on malaria than prevention, and why?

3. Do you think mothers with children U5 delay in seeking health care?

4. Do you think some religious and traditional beliefs restrict women from assessing health care and using drugs for children U5?

5. What are some of the challenges of mothers with U5 in seeking health care for their children?

6. As a facility, do you think you have adequate resources in terms of finance resources/ budgetary allocation, personnel, number of beds, medical supplies, and other facilities to provide quality health care delivery? What are your main challenges?

7. What do you think are the challenges in reducing malaria incidence in the district?

8. What measures do you think should be put in place to reduce malaria incidence in the district?

## Private Health Provider

**Gender:** Male [ ] Female [ ]

**Age:** 20 — 29years [ ] 30—39years [ ] 40—49years [ ] 50years and above [ ]

**Educational Level:** Basic level [ ] Secondary Level [ ] Tertiary [ ] Postgraduate [ ]
Other (Please specify) ……

How long have you been in your current position?
1—4years [ ]
5—9years [ ]
10—14years [ ]
15years and above [ ]

1. What is the state of U5 child health in the district? What is the annual child U5 mortality rate in your facility? What are the main causes of U5 child mortality in the district? How has malaria contributed to the current state of U5 child mortality in your facility? How many cases of U5 malaria cases do you record daily, monthly, and annually? What in your opinion are the main causes of U5 malaria prevalence?

2. What are the existing policies, legislations and laws that govern and regulate the child health in the district? To what extent have you been involved in the formulation and implementation of health policies on malaria?

3. In your opinion what has been impact of the implementation of health policies on U5 malaria health outcome? What do you think are the key challenges confronting the implementation of these policies and regulations as far as U5 malaria health outcome is concerned?

4. To what extent do you think political relations (political transitions) affected the implementation of health policies and regulations on child health in the district?

5. What medicines have been mandated for the treatment of U5 malaria cases? To what extent have these medicines been effective for treatment of U5 malaria? Despite the existence and usage of all these medicines, why does U5 malaria health still persist? In your opinion, do you think more emphasis has been placed on treatment on malaria than prevention, and why?

6. What measures do you think should be put in place to reduce malaria incidence in the district?

## National Malaria Control Programme

**Gender:** Male [ ] Female [ ]

**Age:** 20 — 29years [ ] 30—39years [ ] 40—49years [ ] 50years and above [ ]

**Educational Level:** Basic level [ ] Secondary Level [ ] Tertiary [ ] Postgraduate [ ]
Other (Please specify) ……

How long have you been in your current position?
1—4years [ ]
5—9years [ ]
10—14years [ ]
15years and above [ ]

1. What is the state of U5 child health in your opinion? What are the main causes of U5 child mortality in Ghana? How has malaria contributed to the current state of U5 child mortality? What has been the prevalence rate of U5 malaria health outcome over the past 15years (Statistics). Which region/district has the highest/lowest U5 malaria prevalence rate and U5 mortality, and why? What in your opinion are the main causes of U5 malaria prevalence?

2. What are the existing legislations and laws that govern and regulate the child health sector? What are the main processes involved in the agenda setting and formulation of health policies? Who are the key actors/stakeholders in the formulation of health policies? To what extent have all these actors been involved in the formulation of recent health policies on malaria? What are the specific health policies on malaria?

3. What is the state of implementation of these health policies across the regions/districts? What has been the impact of the implementation of these policies on U5 malaria health

outcome? What are the key challenges confronting the implementation of these policies and regulations as far as U5 malaria health outcome is concerned?

4. How have political relations (political transitions) affected the implementation of health policies and regulations on child health? To what extent has the government been committed in addressing U5 malaria health outcome? Have budgetary allocations for U5 child health been enough? How much has been allocated over the past 5years?

5. What medicines have been mandated for the treatment of U5 malaria? To what extent have these medicines been effective for the treatment of U5 malaria? Despite the existence and usage of all these medicines, why does U5 malaria health still persist? In your opinion, do you think more emphasis has been placed on treatment on malaria than prevention, and why?

6. What measures do you think should be put in place to reduce malaria incidence in the country?