THE IMPACT OF WORLD HEALTH ORGANIZATION (WHO) IN THE ERADICATION OF MALARIA IN NIGERIA

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FACULTY OF ARTS

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A RESEARCH PROJECT PRESENTED TO THE DEPARTMENT OF HISTORY AND INTERNATIONAL STUDIES, FACULTY OF ARTS, UNIVERSITY OF BENIN, BENIN CITY, EDO STATE IN PARTIAL FULFILLMENT OF THE REQUIREMENTS FOR THE AWARD OF BACHELOR OF ARTS IN (HISTORY AND INTERNATIONAL STUDIES) INTERNATIONAL STUDIES AND DIPLOMACY.

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DEDICATION

The project is dedicated to God the father, the son and the Holy Spirit for the divine mercies, favour, love, care and protection as well as provisions throughout my stay in the University of Benin.

CERTIFICATION

This is to certify this research project was carried out by **IKPONMWOSA Tessy** in the Department of History and International Studies, University of Benin, under my supervision.

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CHAPTER ONE

BACKGROUND TO STUDY

Introduction

Malaria remains one of the most pressing public health challenges in Nigeria, with millions of cases reported annually and significant loss of life, particularly among children under five and pregnant women [1]. Despite being a preventable and treatable disease, malaria continues to persist largely due to a combination of environmental, socio-economic, and institutional factors. Nigeria accounts for a disproportionately high share of the global malaria burden, contributing approximately 27% of global cases and 32% of global malaria deaths as of 2022 [2]. These alarming statistics have underscored the urgent need for sustained and strategic interventions, especially from international organisations such as the WHO.

The World Health Organisation (WHO), as the United Nations' specialised agency for health, plays a critical role in coordinating global health responses and supporting national governments in tackling infectious diseases. In Nigeria, the WHO has implemented various programs, partnered with governmental and non-governmental actors, and provided technical and financial support to reduce malaria transmission and mortality. These efforts include mass distribution of insecticide-treated nets (ITNs), training of health workers, provision of antimalarial medicines, and support for data systems that monitor disease trends.

Despite these interventions, Nigeria continues to struggle with malaria eradication. This paradox continued high malaria prevalence amidst sustained WHO efforts, raising important questions about the effectiveness, limitations, and overall impact of WHO's involvement. Therefore, it is crucial to understand how WHO's strategies are executed within the Nigerian context and identify the factors that either enhance or undermine their success. The

effectiveness of global partnerships in improving local health outcomes, particularly in countries with fragile healthcare infrastructure like Nigeria, must be examined critically.

Furthermore, the concept of eradication itself presents a unique challenge. While reduction in prevalence is a measurable and often celebrated outcome, eradication implies the complete and permanent interruption of malaria transmission. Achieving this ambitious goal requires medical and technical interventions and a supportive political, economic, and cultural environment. With Nigeria's diverse population, climate variability, and health system challenges, the path to eradication is fraught with obstacles. Therefore, this study aims to investigate the impact of WHO's contributions not just in terms of statistical reductions in malaria cases, but also in building capacity, influencing policy, and sustaining long-term progress toward eradication.

This project research assesses the depth and breadth of WHO's influence and explores the interplay between international health governance and national implementation. It also seeks to contribute to the broader discourse on the effectiveness of international organisations in achieving health-related Sustainable Development Goals (SDGs), especially in high-burden countries. By evaluating WHO's role in Nigeria's fight against malaria, this study aspires to illuminate successes and areas needing improvement and provide evidence-based recommendations for enhancing global-local health collaborations.

Aim and Objectives

This project aims primarily at examining the role played by the World Health Organisation (WHO) in Nigeria to eradicate malaria, focusing on how its various strategies and programs have been introduced, sustained, and received across different parts of the country. It also aims to examine the effectiveness of these interventions over time while exploring how well they

align with Nigeria's national health priorities and the broader global goals of malaria elimination.

Objectives:

1. To understand the background and nature of malaria in Nigeria and why it remains a significant public health issue.

2. To examine the role of the World Health Organization (WHO) in supporting Nigeria's efforts to control and eventually eradicate malaria.

3. To explore the specific programs and strategies introduced by WHO and how they have been applied across different parts of the country.

4. To assess the challenges faced in implementing these interventions, including funding, coordination, and accessibility.

5. To consider the overall impact of WHO's involvement on Nigeria's malaria burden and its broader public health system.

6. To contribute to the existing body of knowledge on global health efforts by examining WHO's role in malaria eradication within the Nigerian context, with a focus on lessons that can inform future interventions in similar high-burden countries.

Scope of Study

The study will specifically examine the role of the World Health Organisation (WHO) in malaria eradication efforts in Nigeria. It will consider the Nigerian context, including the unique social, economic, environmental, and political factors that influence the spread of malaria and the implementation of interventions. The research will pay close attention to how

the WHO operates in collaboration with national bodies, such as the National Malaria Elimination Programme (NMEP), as well as international partners, including the Global Fund. It will also consider how WHO's global strategies are adapted (or not) to Nigeria's diverse regions, health systems, and communities.

Next, the study will focus on WHO-supported malaria interventions, including the mass distribution of insecticide-treated nets (ITNs), seasonal malaria chemoprevention (SMC), and the training of healthcare workers. The research will investigate the real-life impact of these efforts, examining where they have been effective and where they have not and identifying the reasons behind these differences. It will also explore challenges like funding, logistics, community engagement, and coordination with Nigerian health agencies. The study aims to go beyond simply describing WHO's involvement by offering a critical assessment of the sustainability and effectiveness of these interventions. Lastly, it will provide recommendations for enhancing the WHO's support in Nigeria, particularly about long-term malaria eradication goals, community ownership, and alignment with national health priorities.

Literature Review

The eradication of malaria remains a formidable challenge for many developing countries, particularly in sub-Saharan Africa, where climatic, socio-economic, and infrastructural factors continue to impede progress. Nigeria has emerged as the epicentre of the global malaria burden, accounting for nearly a third of global malaria deaths as of 2022 [3]. A vast body of literature explores malaria's causes, control mechanisms, and eradication strategies in Nigeria. However, relatively few studies provide an in-depth and critical assessment of the role those international organisations, especially the World Health Organisation (WHO), have played in these efforts. This literature review examines major scholarly works and institutional reports

related to WHO's malaria intervention in Nigeria, identifies gaps, and situates the relevance of the current study.

One foundational work in this field is by Noor, Kinyoki, Mundia, Kabaria, Mutua, Alegana, Fall, and Snow, titled "The Changing Limits and Incidence of Malaria in Africa: 1939–2009" [4], who extensively mapped malaria incidence across Africa, highlighting trends in prevalence and transmission intensity. Their research, which utilised geo-coded data from 2000 to 2015, emphasised Nigeria's persistent high-burden status and the uneven success of malaria interventions across regions. Although this study provided critical epidemiological insights, it focused on disease patterns and statistical modelling rather than institutional intervention or policy effectiveness. Consequently, it did not specifically evaluate the role of WHO in altering these patterns, leaving a key gap in understanding how organisational efforts correlate with health outcomes.

Another important contribution is found in the work of Hemingway, Shretta, Wells, Bell, Djimdé, Achee, and Qi, titled *Tools and Strategies for Malaria Control and Elimination: What Do We Need to Achieve a Grand Convergence in Malaria?* [5], who discussed the evolution of global malaria strategies and WHO's changing role within them. They emphasised WHO's shift from control to eradication, noting its political and financial complexities. While the authors acknowledged WHO's technical leadership and coordination of global efforts such as the Roll Back Malaria (RBM) initiative, they did not offer detailed, country-specific evaluations. The lack of localised analysis makes it difficult to ascertain how WHO's broader frameworks translate into tangible results in a diverse and complex setting like Nigeria. It shows the need for targeted country-level studies to assess the nuanced impact of the WHO in national malaria contexts.

More recent studies have attempted to provide this national focus. Omojuyigbe, Owolade, Sokunbi, Bakenne, Ogungbe, Oladipo, and Agughalam, in *Malaria eradication in Nigeria: State of the nation and priorities for action* [6] analysed the collaborative roles of international health agencies in Nigeria's malaria control, emphasising WHO's strategic partnerships with the Federal Ministry of Health and the National Malaria Elimination Programme (NMEP). Their work noted the success of initiatives like the mass distribution of insecticide-treated nets (ITNs) and seasonal malaria chemoprevention (SMC) campaigns, which significantly reduced child mortality in northern Nigeria. However, while they credited WHO for programmatic support and technical guidance, the study lacked a critical evaluation of sustainability and did not address the limitations of these interventions in hard-to-reach communities. It leaves questions about whether WHO's efforts are equitable and adaptable enough to reach Nigeria's most vulnerable populations.

Omole, Okafor and Umeh (2020) [7] approached the subject by reviewing the effectiveness of WHO-led malaria interventions in Nigeria over the past decade. Their analysis revealed inconsistencies in implementation, coordination challenges with local stakeholders, and limited community ownership of WHO-sponsored programs. The authors argued that while WHO excels in setting health standards and providing initial momentum, its top-down approach sometimes clashes with Nigeria's decentralised healthcare system. This critique is crucial, as it exposes a structural gap in intervention design, one that this current research seeks to investigate further. Specifically, this study explores how the WHO's role can be better aligned with local governance structures to improve outcomes.

In contrast, some scholars have provided more favourable appraisals. Onyebuchi and Okechukwu in *Distribution of insecticide-treated nets in Nigeria: Logistical issues and community responses* [8] documented the logistics and outcomes of ITN distributions in

southeastern Nigeria and concluded that WHO's technical and financial support was instrumental in achieving broad coverage. They emphasised the success of WHO's engagement with community health workers and the importance of behaviour change communication in sustaining the usage of preventive tools. However, their focus on a specific intervention type and region limited the generalizability of their findings. Furthermore, they did not critically assess how the WHO ensures accountability and monitors long-term impact after the conclusion of its projects.

The issue of sustainability is further examined by Goldberg and Bryant, [9] who studied the institutional capacity of African countries to absorb and sustain donor-driven health initiatives. They contended that many WHO-led interventions in Africa, including those targeting malaria, face discontinuity due to over-reliance on external funding and insufficient integration with national health systems. According to the authors, Nigeria is emblematic of this challenge, as political instability, funding volatility, and health workforce deficits undermine the longevity of externally supported programs. This perspective is highly relevant to the present study, which seeks to determine the existence of WHO efforts and their long-term viability in Nigeria.

One area that remains underexplored in the literature is the community-level perception of WHO's presence and effectiveness. Rifkin in *Lessons from community participation in health programmes: a review of the post Alma-Ata experiences* [10] emphasised the importance of community engagement in global health, arguing that the success of interventions hinges on the extent to which they involve and empower local populations. However, few studies have systematically examined how Nigerian communities perceive WHO-led malaria interventions. This omission represents a critical gap that this study aims to partially address by reviewing

secondary accounts, reports, and evaluations that discuss community reactions, adoption patterns, and levels of trust in WHO-supported programs.

The theoretical frameworks employed in malaria intervention studies also vary considerably. While epidemiological and biomedical perspectives dominate much of the existing literature, some scholars advocate for more integrated approaches. Brugha et al. (2002) [11] criticised the "vertical" approach of disease-specific interventions, like those often championed by WHO, as being less sustainable than "horizontal" strategies that strengthen overall health systems. In the context of Nigeria, where malaria intersects with poor sanitation, poverty, and low literacy, a more integrated model is necessary. This study builds on that argument by analysing whether WHO's strategies in Nigeria exhibit flexibility and responsiveness to such cross-sectoral issues.

Beyond academia, several institutional reports also provide insight into WHO's malaria activities in Nigeria. The World Malaria Report (2021) [12] detailed WHO's support for the scale-up of seasonal malaria chemoprevention, the expansion of malaria surveillance platforms, and the training of frontline health workers across several Nigerian states. While these efforts have improved diagnostic and treatment access, the report also acknowledged persistent gaps in health service delivery, especially in rural and insurgency-affected areas. Similarly, WHO's Nigeria Country Cooperation Strategy (2018–2022) highlighted strategic priorities such as health systems strengthening, emergency preparedness, and equitable access to essential services. However, these documents tend to present best-case scenarios and often underreport the implementation challenges encountered on the ground.

Complementary to WHO's self-assessments are evaluations by funding partners such as the Global Fund and USAID. The Global Fund's 2020 Nigeria Malaria Grant Performance Report

noted progress in reducing malaria incidence but cited data quality issues, poor inventory management, and suboptimal coordination among partners. These findings corroborate critiques in academic literature regarding fragmentation and inefficiencies in malaria programming. Notably, the report recommended that WHO improve its facilitative role in harmonising stakeholder actions, a theme that this study further interrogates through the lens of global-local partnership dynamics.

The socio-economic dimension of malaria eradication is another focal point that deserves more attention. Gallup and Sachs (2000) [13] demonstrated the macroeconomic burden of malaria in Africa, linking high disease prevalence to reduced productivity and economic stagnation. While the WHO has acknowledged this connection in its strategic frameworks, limited literature assesses whether the WHO's Nigeria-specific programs address the broader developmental implications of malaria. For instance, are interventions designed in ways that consider school absenteeism, labour market outcomes, or maternal health? These are critical areas that the current research hopes to bring into sharper focus, thus expanding the discourse beyond biomedical success metrics.

In terms of gender, several studies have shown that women and children bear the brunt of malaria's impact, yet few evaluations of WHO's interventions disaggregate data or outcomes along gender lines. Adedayo and Osasona (2019) [14] noted that gender-sensitive approaches to malaria control remain inadequate in Nigeria, particularly regarding outreach and education campaigns. This oversight is problematic, as gendered health disparities can significantly influence the effectiveness of public health interventions. The present study highlights this gap by analysing how WHO's strategies address, or fail to address, gender dynamics in malaria prevention and treatment.

In synthesising the reviewed literature, several themes emerge. First, WHO is universally acknowledged for its normative and technical leadership in malaria control. Second, there is consensus that WHO's presence in Nigeria has facilitated significant public health gains, particularly through ITNs, antimalarial drugs, and diagnostic services. However, thirdly, and more critically, many scholars and reports highlight shortcomings in sustainability, community involvement, data integrity, and policy alignment. These gaps offer fertile ground for research that moves beyond description to evaluation. Therefore, this study contributes to the existing literature by providing a holistic, country-specific assessment of WHO's role, focusing on successes and areas needing reform.

Ultimately, the literature reviewed indicates that while the WHO's impact in Nigeria is substantial, it is not without limitations. By integrating perspectives from academic works, institutional reports, and policy critiques, this study offers a comprehensive evaluation that is both timely and necessary. It moves the conversation forward by documenting what WHO has done and asking how these actions have shaped malaria eradication efforts, for whom they have worked, and how they can be improved. This layered understanding is essential for making evidence-based recommendations that advance national and global health goals.

Methodology

This project will adopt a historical approach, drawing mainly from existing journals, published data, and scholarly literature to examine the role of the World Health Organization (WHO) in malaria eradication efforts in Nigeria. Through a careful and critical analysis of these sources, the study aims to provide a deeper understanding of how WHO interventions have been implemented, their impact, and the challenges encountered along the way. Various research methods will be used to guide the study.

Primary sources: will include official reports from the World Health Organisation (WHO), government policy documents from Nigeria's Ministry of Health, and strategic plans from the National Malaria Elimination Programme (NMEP). These documents will help in tracing the history, scope, and structure of malaria-related interventions in the country.

Secondary sources: will comprise academic journal articles, books, news publications, and evaluations from development partners, such as the Global Fund and USAID. These will be used to provide context, expert insights, and a range of perspectives on the effectiveness of WHO's efforts. Field-based information such as recorded interviews and community-level studies (as documented in peer-reviewed research) will also be considered where available.

Conclusion

This project aims to shed light on the actual impact of WHO's involvement in Nigeria's fight against malaria. By examining both the successes and limitations of these efforts, the research aims to provide practical insights into how global health partnerships can be strengthened and made more effective in real-world settings, such as Nigeria.

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CHAPTER TWO

THE ORIGIN OF MALARIA AND WHO'S INVOLVEMENTS IN NIGERIA

Introduction

History and Spread of Malaria in Nigeria

Malaria is one of the oldest and most persistent diseases in human history, with evidence of its presence dating back thousands of years. In Nigeria, malaria has evolved from a seasonal problem to a chronic public health crisis that affects millions annually. Its history is deeply intertwined with the country's climate, ecology, colonial past, public health systems, and socio-economic development. Understanding the origin and spread of malaria in Nigeria provides the necessary foundation for evaluating the impact of the World Health Organisation (WHO) in combating the disease.

Malaria was endemic in the region now known as Nigeria long before the arrival of Europeans. However, it was not fully understood as a distinct disease. Indigenous communities developed coping mechanisms, such as herbal treatments and avoidance of swampy areas, though without a clear scientific understanding of transmission[1]. The disease thrived in Nigeria's tropical climate, characterised by high humidity, rainfall, and abundant breeding sites for mosquitoes, especially the Anopheles gambiae species, the primary vector of malaria in sub-Saharan Africa.

The colonial period, especially from the late 19th century onward, marked a significant turning point in the documentation and spread of malaria in Nigeria. European colonial officers and missionaries, particularly from Britain, encountered high mortality rates due to

malaria, which they termed “the white man’s grave.” To combat this, colonial administrators established rudimentary health posts and promoted the use of quinine, a bitter extract from the cinchona tree, as both treatment and prophylaxis[2]. Ironically, while colonial officers received some protection, little was done to extend these measures to the indigenous population, who bore the brunt of the disease’s impact.

With Nigeria’s independence in 1960 came a shift in public health priorities. Malaria remained a significant concern, but it was mainly addressed through vertical programs led by the newly established Federal Ministry of Health. However, early efforts were hampered by poor infrastructure, limited access to healthcare, and inadequate funding. In the 1970s and 1980s, sporadic campaigns focused on spraying insecticides, distributing chloroquine, and draining mosquito breeding grounds. However, these initiatives often lacked continuity, and growing resistance to chloroquine soon weakened their effectiveness [3].

The creation of the National Malaria Control Programme (NMCP), later renamed the National Malaria Elimination Programme (NMEP), marked an attempt to coordinate malaria responses more systematically. However, even by the early 2000s, malaria remained the leading cause of outpatient visits and hospitalisations in Nigeria.

According to the 2021 Malaria Indicator Survey (MIS), malaria prevalence among children under five was highest in Kebbi State (47%) and lowest in Lagos (1.2%), revealing stark contrasts between rural and urban environments [4]. These patterns reflect broader disparities in infrastructure, healthcare access, education, and socio-economic status, all of which affect exposure and response to the disease.

Multiple factors have fuelled the spread of malaria in Nigeria. Among the most significant issues is the lack of sanitation and drainage systems, especially in slum areas and rural

communities, which allows stagnant water to serve as a breeding ground for mosquitoes. Additionally, climate change is expanding malaria-prone zones by altering rainfall patterns and prolonging transmission seasons in regions that were previously less affected [5].

Another critical driver is population movement, particularly rural-to-urban migration and displacement caused by conflict in the North-East. Internally displaced persons (IDPs) living in overcrowded camps often lack mosquito nets or access to proper healthcare, making them highly vulnerable to malaria infection.

Drug resistance has also been a growing problem. Initially, chloroquine was the primary treatment for malaria in Nigeria. However, widespread misuse and self-medication led to drug-resistant strains of Plasmodium falciparum, the deadliest malaria parasite. By 2005, the Nigerian government, following WHO recommendations, switched to artemisinin-based combination therapies (ACTs), which remain the frontline treatment today [6]. However, resistance to ACTs is also emerging in parts of Africa, raising concerns about the future effectiveness of treatment.

Malaria is more than a health issue; it is an economic burden that impedes development. According to the Nigerian Ministry of Health, malaria is responsible for nearly 60% of outpatient visits, 30% of hospital admissions, and contributes to 11% of maternal mortality and 25% of infant mortality [7]. These numbers are not just statistics; they reflect households thrown into poverty due to medical costs, children missing school, and workers losing income.

The economic toll is immense. It is estimated that Nigeria loses over 132 billion naira (about $906 million) annually to malaria-related expenses and productivity losses [8]. It includes the cost of treatment, prevention, transportation to health centres, and lost labour. For many

families, especially in rural areas, malaria is a recurring crisis that consumes scarce resources and perpetuates poverty.

It is against this backdrop that WHO's involvement becomes critically important. The organisation has provided technical leadership, funding coordination, and operational guidance to Nigeria's malaria elimination efforts notably, WHO played a pivotal role in the development of the Roll Back Malaria (RBM) initiative in 1998 and continues to support Nigeria's National Malaria Strategic Plans through direct technical assistance.

Furthermore, the WHO assists in nationwide campaigns, such as the mass distribution of insecticide-treated nets, training of community health workers, malaria surveillance, and the adoption of intermittent preventive treatment for pregnant women and infants. However, while the partnership has seen some measurable successes, such as improved diagnosis rates and reduced mortality in some regions, malaria remains deeply entrenched, a reality that underscores the complexity of eradicating a disease that is as much social and political as it is biological.

The history and spread of malaria in Nigeria tell a story not just of disease but of inequality, infrastructure failure, resilience, and global partnership. While the disease has ancient roots, its current form in Nigeria is shaped by modern forces, climate change, migration, drug resistance, and systemic health challenges. Understanding this historical context is crucial for evaluating the WHO's impact on malaria eradication. It provides a backdrop for assessing whether international support has merely managed malaria or has made a meaningful contribution to its long-term decline in Nigeria.

The Founding of WHO and Its Health Mandate

The World Health Organisation (WHO) stands today as the foremost global authority on public health, but its origins were shaped by the political and humanitarian crises of the early 20th century. Created in the aftermath of two world wars and amidst rising concern over global disease transmission, the WHO was envisioned as a unifying international body capable of coordinating responses to health emergencies and promoting equitable access to healthcare worldwide. Understanding the historical foundations and institutional mandate of the WHO is critical to evaluating its role in malaria eradication efforts in Nigeria and beyond.

The WHO was formally established on 7 April 1948 as a specialised agency of the United Nations (UN), following the ratification of its constitution by 26 member states [9]. Its formation marked the culmination of earlier international health efforts dating back to the 19th century, such as the International Sanitary Conferences and the League of Nations Health Organisation. However, it was not until the horrors of World War II and the emerging understanding that disease transcended borders that a truly global health body was deemed essential.

The organisation's constitution boldly declared that "health is a state of complete physical, mental and social well-being and not merely the absence of disease or infirmity," a progressive definition that still stands today. This statement laid the groundwork for WHO's broad and ambitious mandate: to act as the directing and coordinating authority on international health work.

The WHO's core functions, as outlined in its founding documents, include establishing international health standards, monitoring disease outbreaks, coordinating global responses to public health emergencies, and providing technical assistance and training to support the

development of national health systems. It also engages in the collection and dissemination of health data, helping countries set evidence-based priorities.

One of WHO's early and ongoing functions has been disease eradication. The organisation played a central role in the eradication of smallpox, a feat completed in 1980 and often cited as one of the most outstanding achievements in public health history [10]. This success demonstrated the potential of coordinated international action and set a precedent for subsequent eradication campaigns, including those against polio, tuberculosis, and malaria.

Malaria has been a top priority for the WHO since its inception. The organisation's first World Health Assembly in 1948 included malaria among the diseases to be tackled urgently. In 1955, WHO launched the Global Malaria Eradication Programme (GMEP), focused primarily on indoor residual spraying and vector control in endemic countries. While the program achieved success in some regions, particularly in Europe, Latin America, and parts of Asia, it struggled in sub-Saharan Africa, where weak infrastructure, lack of political will, and complex socio-ecological dynamics impeded progress [11].

By 1969, the WHO acknowledged the failure of the GMEP in Africa and shifted its focus from eradication to malaria control, emphasising the reduction of morbidity and mortality rather than complete elimination. This strategic shift reflects the WHO's adaptive mandate, evolving in response to scientific evidence, resource availability, and on-the-ground realities.

In the 1990s, WHO's malaria mandate was revitalised with the establishment of the Roll Back Malaria (RBM) Partnership in 1998, a coalition involving UNICEF, the World Bank, and other global health partners. The RBM initiative aimed to halve the malaria burden by 2010 through a more integrated and community-based approach [12]. It reflected a broader

institutional shift within WHO from top-down interventions to collaborative and localised strategies.

Further reforms were introduced with the Global Technical Strategy for Malaria 2016–2030, which outlined ambitious targets, including a reduction in global malaria incidence and mortality of at least 90% by 2030 [13]. The strategy also emphasised universal access to prevention, diagnosis, and treatment, coupled with investment in research and innovation. Nigeria, as one of the high-burden countries, has become a focal point for the WHO's malaria interventions, especially under the High Burden to High Impact (HBHI) initiative launched in 2018.

WHO operates through three levels: headquarters in Geneva, regional offices, and country offices. Nigeria falls under the African Regional Office (AFRO), headquartered in Brazzaville, Republic of Congo. Within Nigeria, WHO maintains a country office that works closely with the Federal Ministry of Health, the National Malaria Elimination Programme (NMEP), and state health departments. This decentralisation is intended to allow for context-specific support, ensuring that WHO's global mandate can be tailored to local needs.

Early WHO Interventions in Nigeria

The presence of the World Health Organisation (WHO) in Nigeria dates to the years immediately following the country's independence in 1960. At that time, Nigeria, like many newly independent African states, faced significant health challenges, including widespread infectious diseases, poor sanitation, inadequate infrastructure, and a lack of trained healthcare personnel. Malaria was particularly endemic and responsible for a high proportion of childhood and maternal mortality as Nigeria sought to build a national health system, WHO

stepped in as both a technical advisor and a development partner, providing support that would shape the country's early responses to malaria and other communicable diseases.

One of WHO's earliest health partnerships with Nigeria involved supporting the establishment of national disease surveillance systems. Malaria, being one of the top public health threats, was quickly identified as a priority disease for coordinated action. WHO began by helping Nigeria build the institutional and diagnostic capacity to recognise and report cases accurately. At a time when laboratory diagnosis was limited and health records were largely incomplete, this technical support helped lay the groundwork for more targeted malaria interventions. In addition, WHO worked with Nigeria's Federal Ministry of Health to integrate malaria case reporting into a broader system of notifiable diseases, an approach that would eventually become standard practice across West Africa.

During the 1960s and 1970s, the WHO introduced several control-oriented programs in collaboration with the Nigerian government. These early efforts were heavily influenced by the global malaria strategy of the period, which emphasised vector control through indoor residual spraying (IRS) using insecticides such as DDT. The strategy aimed to interrupt transmission by eliminating the mosquito vectors that carried Plasmodium falciparum, the most virulent form of the malaria parasite. WHO provided both the insecticides and the technical training necessary to execute spraying campaigns across several high-transmission zones in Nigeria, particularly in the Middle Belt and Southern regions where rainfall and swampy environments favoured mosquito breeding [14]. However, these efforts faced logistical setbacks, including poor road access to remote communities, lack of sustained funding, and limited public awareness.

Another early intervention by WHO involved providing anti-malarial drugs, particularly chloroquine, which at the time was the standard of care for malaria treatment. WHO supported Nigeria in importing and distributing the drug, often as part of integrated maternal and child health programs. By the 1970s, chloroquine was included in national essential drug lists and was distributed widely through public hospitals and community health centres. WHO's involvement in these drug distribution initiatives extended beyond logistics; it also included capacity-building for local pharmacists, healthcare providers, and community health workers to ensure correct dosage and minimise resistance risks [15]. Despite these efforts, misuse and self-medication became widespread, leading to the early development of chloroquine resistance in Nigeria, a problem that the WHO would later have to help address.

Importantly, WHO did not work in isolation but partnered with bilateral donors and other UN agencies; one notable example was its collaboration with the United Nations Children's Fund (UNICEF) and the United States Agency for International Development (USAID) in funding rural health missions. These missions aimed to bring basic health services, including malaria treatment and prevention, to underserved populations. WHO often led the technical planning of such missions, ensuring that malaria-specific interventions, such as vector control, drug treatment, and health education, were embedded within broader rural development strategies [16]. However, due to political instability and frequent changes in Nigeria's government, many of these programs were inconsistently implemented, lacking the continuity necessary for long-term impact.

In the late 1970s and early 1980s, WHO began shifting its approach in Nigeria and other African nations by promoting what was then called the Primary Health Care (PHC) model. Launched formally through the Alma-Ata Declaration in 1978, the PHC approach emphasised community participation, prevention over cure, and integration of disease-specific

interventions into general health systems [17]. In Nigeria, WHO supported the implementation of this strategy by helping train health workers in malaria case management and community-level health promotion. For the first time, WHO began advocating for the use of insecticide-treated nets (ITNs), though these were not widely adopted in Nigeria until much later. The PHC approach also involved WHO's support for mass health education campaigns aimed at teaching Nigerians about the dangers of stagnant water, the benefits of early treatment, and the proper use of anti-malarias.

Despite these initiatives, WHO's early interventions in Nigeria were often constrained by systemic challenges, including weak infrastructure, limited data collection systems, and inconsistent political will. Many of WHO's malaria-focused activities were carried out in urban centres or accessible rural areas, while vast regions, especially in the North-East and riverine communities, remained largely underserved. Nevertheless, these early decades of engagement laid the groundwork for more structured interventions in the future. They also established relationships between the WHO and Nigeria's health institutions that would prove crucial in later years, particularly during the scaling up of malaria interventions in the 2000s and beyond.

Overall, WHO's early malaria interventions in Nigeria were foundational. They provided Nigeria with its first exposure to global standards in malaria surveillance, treatment, and vector control. While these efforts were not enough to halt the spread of the disease, they introduced technical models, institutional partnerships, and strategic thinking that would later inform more sophisticated malaria control programs. Importantly, they also underscored the need for continuous adaptation, a theme that continues to shape WHO's evolving role in Nigeria's health sector.

Major Programs and Campaigns by WHO

The World Health Organisation (WHO) has played a central role in designing and coordinating large-scale malaria programs and campaigns in Nigeria. Over the years, WHO has transitioned from early technical support to more comprehensive, multi-sectoral interventions aimed at prevention, treatment, and health system strengthening. These major initiatives have targeted not only malaria control but also malaria elimination, with a focus on vulnerable populations such as pregnant women, children under five, and communities in high-transmission regions. Through global frameworks and country-specific strategies, the WHO has helped shape Nigeria's national malaria agenda, often in partnership with the Nigerian government, donor agencies, and civil society organisations.

One of the most significant and sustained WHO-led initiatives has been the Roll Back Malaria (RBM) Partnership, launched in 1998. RBM was not only a WHO strategy but a multi-stakeholder initiative involving the World Bank, UNICEF, UNDP, and other partners. Its main goal was to halve the global malaria burden by 2010 through integrated strategies such as the widespread distribution of insecticide-treated nets (ITNs), improved access to effective drugs like artemisinin-based combination therapies (ACTs), and the strengthening of health systems [18]. In Nigeria, the RBM program was implemented at both the federal and state levels, with the WHO acting as the lead technical partner. As a result, millions of ITNs were distributed, community-based awareness campaigns were launched, and state ministries of health received operational guidance to mainstream malaria prevention into routine primary healthcare services.

The Mass Insecticide-Treated Net Distribution Campaigns are among the most visible WHO-endorsed efforts. Since the early 2000s, the WHO has worked with Nigeria's Ministry of Health and international donors to carry out periodic mass distributions of long-lasting

insecticidal nets (LLINs). These campaigns aim to achieve universal coverage, defined as one net for every two people per household. In 2019 alone, over 30 million nets were distributed across 16 states with WHO providing logistical coordination, quality assurance, and post-distribution evaluations [19]. Despite progress, the misuse of nets and resistance to insecticides have been persistent problems, leading the WHO to begin advocating for next-generation nets treated with dual insecticides and new delivery strategies, such as school-based distributions.

WHO has also supported malaria surveillance and early warning systems in Nigeria. One of the most underappreciated yet critical areas of malaria control is the collection and reporting of accurate data. In partnership with the Nigerian Centre for Disease Control (NCDC) and the National Malaria Elimination Programme (NMEP), WHO has worked to strengthen data systems that track malaria cases, deaths, and intervention coverage.

Despite these efforts, challenges remain. Funding gaps, weak health infrastructure, frequent stock-outs of antimalarial commodities, and human resource shortages continue to limit the full impact of WHO's campaigns. Moreover, increasing resistance to insecticides and antimalarial drugs poses a growing threat to the sustainability of current strategies. The WHO has responded by supporting research into new tools and strategies, including malaria vaccines and gene-editing approaches to mosquito control, although these are still in the early stages in Nigeria.

Conclusion

This chapter has examined the origins of malaria in Nigeria, the founding of the World Health Organisation (WHO), and the nature of WHO's early and primary interventions in the country. The historical trajectory of malaria reveals a disease that has long plagued Nigeria's health system, exacerbated by tropical ecology, infrastructural limitations, socio-economic inequality,

and weak governance. Malaria has not only persisted but also adapted over time, demanding equally adaptive and sustained responses.

The establishment of the WHO in 1948 provided a global institutional framework for addressing infectious diseases, including malaria. As one of the WHO's earliest target diseases, malaria control has evolved through various phases, from initial eradication attempts to vector control and more nuanced, integrated approaches that focus on prevention, treatment, and community involvement. Nigeria, as one of the most malaria-burdened countries in the world, has been a significant beneficiary and focus of the WHO's evolving global health strategy.

However, this chapter has also made it clear that WHO's efforts have not been without challenges. Logistical constraints, funding shortages, political instability, community resistance, and growing resistance to insecticides and antimalarial drugs have all constrained the impact of otherwise well-designed interventions. These issues underscore the importance of context-sensitive, decentralised, and data-driven approaches in any effort to eradicate malaria in Nigeria.

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CHAPTER THREE

WORLD HEALTH ORGANISATION (WHO) STRATEGIES IN NIGERIA

Introduction

WHO is Partnership with Nigerian Institutions

The World Health Organisation (WHO) has long recognised that its global strategies for disease control and eradication must be tailored to national contexts through strong institutional partnerships. In Nigeria, the WHO's collaboration with government and non-governmental institutions has formed the backbone of its malaria intervention efforts. These partnerships have enabled WHO to translate technical guidance into action at the federal, state, and local levels. This section explores how WHO has partnered with Nigerian institutions to implement malaria programs, influence policy, and build capacity within the national health system.

One of the most significant institutional collaborations has been between WHO and the Federal Ministry of Health, particularly through its National Malaria Elimination Programme (NMEP). WHO serves as a lead technical advisor to the NMEP, offering input on policy frameworks, operational planning, and monitoring systems. For instance, WHO played a crucial role in drafting the National Malaria Strategic Plans (NMSPs) for 2014–2020 and 2021–2025, aligning Nigeria's domestic goals with global targets such as those outlined in the Global Technical Strategy for Malaria 2016–2030[1]. These plans detail strategies for prevention, diagnosis, and treatment, while also identifying funding needs and implementation gaps.

At the state level, WHO works through State Ministries of Health, assisting in the localisation of national malaria strategies. Each Nigerian state has its own malaria control or elimination program, often tailored to the specific transmission patterns and logistical realities of that region. WHO supports these efforts by organising training workshops for health workers, strengthening supply chain systems for antimalarial drugs and insecticide-treated nets, and conducting supportive supervision visits to primary healthcare facilities. This decentralised model reflects WHO's recognition that Nigeria's vast size and internal diversity require a state-by-state approach rather than a singular national template.

Collaboration with parastatal agencies and regulatory bodies has also been integral to WHO's strategy in Nigeria. The National Agency for Food and Drug Administration and Control (NAFDAC) works closely with WHO to ensure that antimalarial drugs and insecticides meet international standards. This partnership has helped curb the proliferation of substandard or counterfeit malaria commodities in Nigerian markets, which has historically undermined treatment outcomes and contributed to drug resistance [2], similarly, WHO has engaged the Nigerian Centre for Disease Control (NCDC) in strengthening malaria surveillance and outbreak response systems, particularly through the adoption of digital platforms.

WHO has also forged important partnerships with academic institutions and research bodies. Universities such as the University of Ibadan and the Nigerian Institute of Medical Research (NIMR) have collaborated with WHO on operational research, clinical trials, and vector control studies. These partnerships have provided local evidence to guide WHO's strategies, such as evaluating the efficacy of new insecticides or exploring community attitudes toward malaria interventions. In this way, WHO supports not only immediate program implementation but also the long-term goal of developing Nigeria's public health research capacity.

Despite these partnerships, the WHO's collaboration with Nigerian institutions has not been without challenges. Bureaucratic bottlenecks, overlapping institutional mandates, and inconsistent political commitment at subnational levels have sometimes hindered program implementation. For instance, the delayed release of counterpart funds by some state governments has slowed down WHO-supported campaigns, while frequent leadership changes within ministries can disrupt continuity. Furthermore, the underfunding of Nigeria's health system places additional strain on joint initiatives, limiting the scalability of WHO's technical support[3].

Nevertheless, the partnership model employed by WHO in Nigeria reflects a broader shift from externally driven interventions to national ownership and capacity development. WHO's strategy increasingly emphasises building the institutional strength of Nigerian actors so that malaria programs can become self-sustaining. This approach is aligned with the WHO's global commitment to Universal Health Coverage (UHC) and the Sustainable Development Goals (SDGs), which prioritise local leadership in health systems strengthening [3].

The WHO's partnership with Nigerian institutions represents a critical pillar in the fight against malaria. Through formal collaboration with national ministries, regulatory agencies, research bodies, and community organisations, the WHO has been able to embed its global strategies within Nigeria's unique public health context. While challenges remain, these partnerships provide a strong foundation for more adaptive, responsive, and sustainable malaria control efforts in the years to come.

Use of Medical Technology and Vector Control

The fight against malaria in Nigeria has increasingly relied on the integration of modern medical technologies and targeted vector control strategies. Under the guidance of the World

Health Organisation (WHO), these approaches have been adapted to Nigeria's epidemiological context, supporting early detection, effective treatment, and the interruption of malaria transmission. While traditional tools like insecticide-treated nets (ITNs) and indoor residual spraying (IRS) remain central to the WHO's malaria agenda, new technologies, ranging from digital diagnostics to gene-editing strategies, are beginning to reshape malaria control operations in Nigeria. This section explores how WHO has promoted and supported the use of medical technologies and vector control tools in partnership with the Nigerian government and allied stakeholders.

One of the most transformative shifts in malaria control has been the introduction and scale-up of rapid diagnostic tests (RDTs), and prior to RDT deployment, malaria diagnosis in Nigeria often relied on syndromic assessment, treating any fever as malaria, which led to widespread overtreatment and misuse of antimalarials [4]. In 2010, following the WHO's recommendation, Nigeria adopted the "test, treat, track" (T3) strategy, which mandates confirmation of malaria cases before treatment with ACTs. WHO played a central role in training healthcare workers to use RDTs correctly, ensuring quality control in procurement, and supporting government campaigns to shift provider behaviour. Today, RDTs are available in most public primary healthcare centres across Nigeria, especially in high-transmission states such as Kano, Rivers, and Akwa Ibom.

Another crucial technology supported by WHO is microscopy for malaria parasite detection and density estimation. While RDTs are more accessible, microscopy remains the gold standard for diagnosis, particularly in tertiary hospitals and research institutions. WHO has provided laboratory training, developed microscopy manuals, and funded reference laboratory programs in collaboration with Nigeria's National Malaria Elimination Programme (NMEP).

These efforts have helped enhance diagnostic accuracy, especially in complex or drug-resistant cases.

On the treatment side, WHO has facilitated the introduction and regulation of artemisinin-based combination therapies (ACTs), now considered the most effective treatment for *Plasmodium falciparum*, the deadliest malaria parasite. Nigeria officially transitioned to ACTs in 2005, and WHO supported the policy shift by assisting with national guidelines, prequalification of suppliers, and training on rational drug use. It has improved treatment outcomes and reduced chloroquine-resistant cases. WHO also continues to monitor drug efficacy by supporting therapeutic efficacy studies (TES) conducted by Nigerian academic institutions in collaboration with WHO reference centres [5].

In the realm of preventive medicine, WHO supports the use of intermittent preventive treatment in pregnancy (IPTp) using sulfadoxine-pyrimethamine. It has significantly reduced the incidence of maternal anaemia and low birth weight in malaria-endemic areas. WHO's role includes revising clinical guidelines, ensuring drug safety surveillance, and funding provider training. The use of preventive therapy has increased due to the WHO's active promotion, particularly in antenatal care settings in states like Niger, Ogun, and Kaduna [6].

Turning to vector control, WHO has been a global advocate for the widespread use of insecticide-treated nets (ITNs) and long-lasting insecticidal nets (LLINs). Nigeria is the largest recipient of LLINs in the world, with over 200 million distributed since 2009. These campaigns, conducted in partnership with WHO, the Global Fund, and USAID, aim to provide one net for every two people per household. WHO ensures technical standards are maintained by prequalifying suppliers, training local distributors, and monitoring coverage through

household surveys. In states such as Cross River and Ebonyi, LLIN use has been shown to reduce malaria incidence by over 40% among children under five [8].

Indoor residual spraying (IRS) remains another critical intervention, though its application in Nigeria has been more limited due to cost and operational complexity. WHO provides technical assistance for IRS planning and insecticide selection, as well as training in environmental safety. The intervention has seen targeted application in high-transmission districts, such as those in Bauchi and Sokoto States. The evidence from these regions shows IRS significantly reduces indoor mosquito density for 3–6 months, making it a viable seasonal intervention when well-managed [9].

To respond to rising resistance, WHO has promoted entomological surveillance and insecticide resistance monitoring. Nigeria is part of WHO's Global Plan for Insecticide Resistance Management (GPIRM), and several entomological sentinel sites have been established with WHO support. These sites monitor mosquito behaviour, vector species shifts, and resistance patterns, allowing for the adaptive use of new tools. For example, Nigeria has recently begun piloting PBO (piperonyl butoxide) LLINs, which are effective against pyrethroid-resistant mosquitoes [10].

Emerging technologies are also beginning to shape the malaria response in Nigeria. WHO supports digital health tools that enhance case tracking, logistics management, and outbreak detection. Mobile data collection tools such as DHIS2 Tracker, supported by WHO, allow real-time reporting of malaria cases and commodity stock levels. It improves supply chain visibility and helps program managers make faster decisions [11].

WHO's support for medical technologies and vector control strategies has been instrumental in shaping Nigeria's malaria response. Through diagnostics, treatment innovations, and targeted

prevention tools, WHO has helped modernise malaria control operations and increase their effectiveness. While challenges remain, particularly in access and sustainability, the continued evolution and application of technology, with the WHO's technical leadership, offers Nigeria a promising pathway toward malaria elimination.

Funding and Capacity Building

The success of malaria control efforts in Nigeria depends significantly on the availability of financial resources and the strength of local health system capacity. The World Health Organisation (WHO) has consistently emphasised these two interdependent pillars in its malaria strategy for Nigeria. While WHO is not a primary donor, its influence in shaping funding mechanisms and developing institutional capacity has had a profound impact. Through advocacy, technical guidance, and partnership coordination, WHO helps ensure that Nigeria secures the funding needed to sustain malaria programs while simultaneously developing the human and infrastructural capacity to use these resources effectively.

At the national level, WHO plays a central role in aligning malaria financing with Nigeria's strategic goals. It is primarily achieved through support to the National Malaria Elimination Programme (NMEP) and state-level agencies in developing realistic, costed Malaria Strategic Plans. These documents serve as the basis for securing funds from both international donors and domestic sources. WHO ensures that plans meet global standards, are grounded in evidence, and account for Nigeria's high burden regions. For example, the 2021–2025 National Malaria Strategic Plan, which outlines Nigeria's roadmap toward elimination, was co-developed with technical input and financial modelling assistance from WHO [12].

WHO also plays a catalytic role in resource mobilisation, often convening donors, government agencies, and implementation partners to harmonise funding streams and reduce duplication.

While large-scale funding is primarily sourced from the Global Fund to Fight AIDS, Tuberculosis and Malaria, the U.S. President's Malaria Initiative (PMI), and UNICEF, WHO supports Nigeria in meeting co-financing requirements and implementing accountability measures. For instance, WHO monitors expenditure patterns, provides budget execution guidance, and advises on procurement planning to ensure transparency and cost-effectiveness [13].

Despite these efforts, Nigeria's malaria response remains underfunded, particularly in terms of domestic budgetary contributions. According to the WHO World Malaria Report (2022), Nigeria accounts for 27% of the global malaria burden but receives a disproportionately lower share of funding relative to its needs. WHO has repeatedly advocated for increased national investment in malaria, emphasising that long-term eradication cannot rely solely on external funding. Advocacy campaigns have focused on increasing allocations in the federal and state health budgets, improving financial management, and engaging the private sector to supplement public resources [14].

Alongside financial advocacy, WHO has heavily invested in capacity building at multiple levels of the health system. These investments include training programs, technical assistance, curriculum development, and mentorship activities aimed at improving service delivery, data management, and decision-making. One of WHO's significant contributions is the training of health workers on malaria diagnosis, treatment protocols, and case management. WHO often works in collaboration with local health authorities to deliver cascade-style training programs where national-level experts train state focal persons, who then train local facility staff. These sessions cover the use of rapid diagnostic tests (RDTs), prescription of ACTs, antenatal malaria prevention, and malaria in pregnancy case handling [15].

To ensure sustainability, WHO also supports pre-service training integration, working with health training institutions to include updated malaria guidelines and protocols in their curricula. It ensures that future generations of health workers graduate with the necessary knowledge to deliver quality malaria services. In addition, WHO regularly updates national treatment guidelines and distributes reference materials, posters, and job aids to public and private health facilities across Nigeria.

At the subnational level, WHO supports capacity building through supportive supervision and mentorship programs. In many states, WHO personnel are embedded within State Malaria Elimination Program offices where they provide hands-on guidance in planning, program management, and data utilisation. Regular supervisory visits to health facilities ensure that trained personnel are applying skills correctly and help address challenges such as poor stock management, data errors, or treatment non-compliance. WHO also assists state malaria officers in conducting monthly data reviews and quarterly performance appraisals.

Another essential area of capacity development is logistics and supply chain management. Stockouts of key malaria commodities such as ACTs, RDTs, and LLINs have historically hampered progress. WHO has provided Nigeria with tools and technical support to improve quantification, forecasting, and inventory control. Through training in logistics management information systems (LMIS) and tools like DHIS2, WHO helps ensure that commodities reach the last mile in a timely and accountable manner.

Capacity building also extends to research and innovation. WHO supports Nigerian universities and research institutions in conducting operational studies to inform malaria policy and practice. It includes entomological research, drug efficacy trials, and vector resistance monitoring by funding local research and involving Nigerian scientists in global

knowledge networks. The WHO strengthens national ownership of malaria knowledge production and encourages evidence-based decision-making.

Despite these achievements, capacity challenges persist. High staff turnover, inadequate motivation, poor infrastructure, and insecurity in some regions continue to undermine the full impact of the WHO's training and technical assistance. Additionally, uneven state-level capacity means that while some states successfully absorb WHO support and implement programs effectively, others lag due to weak leadership or political disinterest. WHO has responded by tailoring its support to state-specific needs and using the High Burden to High Impact (HBHI) approach to prioritise high-transmission states with intensified technical assistance.

WHO's approach to funding and capacity building in Nigeria is characterised by its strategic, enabling role. By supporting national planning, coordinating donor investments, and strengthening local institutions, WHO helps ensure that Nigeria's malaria response is both well-funded and operationally capable. The sustainability of these gains, however, depends on Nigeria's ability to transition from donor dependency to domestic resource mobilisation, and to institutionalise capacity through long-term investments in health workforce development and system governance.

Community-Level Interventions

Community-level interventions are critical to the success of malaria control and eradication efforts in Nigeria. The World Health Organisation (WHO), recognising the limitations of top-down strategies, has consistently advocated for the integration of communities into every level of malaria prevention, diagnosis, treatment, and surveillance. In Nigeria, where access to health services can be limited, especially in rural and hard-to-reach areas, empowering

communities has proven essential. This section explores WHO's role in facilitating community-level engagement, behaviour change communication, local health worker training, and grassroots surveillance mechanisms as part of a broader malaria control strategy.

One of the most visible forms of WHO-supported community engagement in Nigeria has been through mass distribution campaigns of long-lasting insecticidal nets (LLINs). At the same time, LLIN procurement is often supported by major donors like the Global Fund and USAID, and the WHO contributes the technical backbone to ensure that community-level implementation meets global standards. It includes developing operational guidelines, training local distribution teams, and monitoring household-level net coverage. Crucially, WHO insists that LLIN campaigns be accompanied by robust community sensitisation efforts so that people not only receive the nets but also use them correctly and consistently [16]. In communities across states such as Ebonyi, Ogun, and Bauchi, local town criers, religious leaders, and schoolteachers have been involved in promoting LLIN usage, often using WHO-approved messages translated into local languages.

Beyond net distribution, WHO has also supported seasonal malaria chemoprevention (SMC) at the community level, particularly in Nigeria's Sahelian northern states where transmission is highly seasonal. SMC involves giving monthly doses of antimalarial drugs to children under five during the rainy season. With WHO's support, community health workers (CHWs) are trained to administer these medications, monitor for side effects, and keep records. These community distributors often come from the villages they serve, which increases trust and uptake. The initiative has significantly reduced malaria incidence among children in states like Sokoto, Zamfara, and Katsina [17].

Behaviour change communication (BCC) at the grassroots level has also been a significant focus of WHO-supported community engagement. In many Nigerian communities, misconceptions about malaria abound; some believe it is caused by eating oily food, exposure to the sun, or spiritual forces. WHO has developed and disseminated culturally appropriate education materials to correct these myths and promote preventive practices. These materials are distributed through schools, churches, mosques, and health facilities, and are often supported by mobile loudspeaker vans and community drama performances. In collaboration with the National Orientation Agency (NOA), WHO has helped launch public awareness campaigns in multiple local languages, targeting high-burden rural districts [18].

WHO also supports school-based malaria education programs, recognising the importance of reaching children and adolescents with health knowledge. Teachers are trained to incorporate malaria information into science and health subjects, and extracurricular clubs are used to reinforce learning through songs, plays, and competitions. In states like Ekiti and Delta, this strategy has led to increased net usage among school-aged children and improved recognition of early malaria symptoms among pupils. These programs not only educate but also foster community-level advocates for malaria prevention.

Furthermore, WHO emphasises community-led surveillance and reporting systems. In areas where formal health data systems are weak, WHO supports the use of community-based surveillance structures that enable early warning of outbreaks. For instance, in pilot areas, community leaders are trained to identify abnormal increases in fever cases and report them to the nearest health facility or local disease surveillance officer. These systems are beneficial during seasonal peaks or in post-flooding scenarios when the risk of transmission spikes. WHO also supports community monitoring of LLIN use, treatment adherence, and the uptake of antenatal malaria services.

WHO's approach also includes working through faith-based organisations (FBOs) and community-based organisations (CBOs), which often have deep social capital and strong organisational structures. These organisations play a vital role in delivering messages about early diagnosis, preventive measures, and the importance of completing malaria treatment. In many communities, FBOs conduct outreach during religious gatherings, while CBOs organise neighbourhood dialogues and peer education sessions. WHO provides technical support and standardised materials to ensure the accuracy and effectiveness of these messages [19].

Despite the successes of community-level interventions, several challenges persist. Firstly, many community volunteers lack financial incentives, which affects motivation and retention. WHO has advocated for integrating CHWs and CORPs into the formal health workforce, but implementation varies by state. Secondly, supervision of community workers remains inconsistent in some regions due to logistical and funding constraints. Thirdly, some communities, particularly in conflict-affected areas, remain inaccessible to community-based programs due to insecurity, which hinders consistent service delivery. WHO continues to adapt by using mobile outreach teams and collaborating with local NGOs to reach these high-risk populations.

WHO's support for community-level malaria interventions in Nigeria is comprehensive and context-specific. Through its technical guidance, training programs, and partnership models, WHO helps bring malaria services closer to the people most affected. Community involvement improves service coverage, enhances local ownership, and builds social support for preventive behaviours. To fully realise the potential of these efforts, continued investment in community systems, incentives for local volunteers, and tailored outreach in marginalised areas will be essential.

Selected Case Studies of WHO's Malaria Interventions in Nigerian States

To better understand the effectiveness of the WHO's malaria control strategies in Nigeria, it is essential to examine their implementation in specific states. Nigeria's diversity, culturally, geographically, and epidemiologically, means malaria transmission patterns and health system capacities vary significantly. The WHO's ability to adapt interventions to local contexts has contributed to notable successes in some regions. This section presents selected case studies from Kano, Cross River, Sokoto, and Ebonyi states, each representing different ecological zones, levels of malaria burden, and outcomes.

Case Study 1: Kano State – Urban Outreach and Vector Control

Kano State, in Nigeria's North-West, has historically recorded high malaria transmission due to its dense population, poor sanitation, and favourable mosquito breeding conditions. In response, the WHO implemented a multi-pronged malaria control strategy combining mass LLIN distribution, urban sanitation campaigns, and digital surveillance support.

Between 2014 and 2021, WHO supported the mass distribution of long-lasting insecticidal nets (LLINs) across all 44 LGAs in the state. With additional assistance from partners such as the Global Fund and USAID, over 8 million nets were distributed. However, WHO's unique contribution lay in ensuring that net distribution was coupled with community education and post-distribution monitoring, ensuring correct net usage. Using trained community mobilisers and town hall meetings, WHO helped boost LLIN use among households from 35% in 2015 to 58% in 2021 [20].

WHO also piloted vector surveillance sites in Kano to monitor resistance to pyrethroid insecticides. The findings prompted the use of PBO (piperonyl butoxide)-enhanced LLINs, which provided improved protection against resistant mosquito populations. In addition,

WHO facilitated environmental sanitation collaborations with the Kano State Urban Planning Authority to address stagnant water pools and garbage accumulation, key breeding sites for mosquitoes.

By 2021, Kano recorded a 30% decline in malaria outpatient attendance among under-fives in public health facilities compared to 2016, suggesting a strong association between intensified control measures and disease reduction [21].

Case Study 2: Cross River State – Community Participation and Integrated Service Delivery

Cross River State in the South-South zone presents a very different context from Kano. It has a tropical rainforest climate, making it malaria-endemic year-round. WHO is focused on Cross River, centred on community-level interventions and integrated service delivery, especially in rural areas where access to health facilities is limited.

Between 2016 and 2020, WHO trained and deployed Community-Oriented Resource Persons (CORPs) across rural LGAs, including Obubra, Ikom, and Yakurr. These community health workers were trained in RDT use, proper ACT administration, referral of severe cases, and malaria education. With WHO's guidance, CORPs worked closely with traditional rulers and community leaders to build trust and boost service utilisation.

In addition, WHO promoted malaria-in-pregnancy (MIP) services through antenatal care clinics. By training nurses and midwives and supplying sulphadoxine-pyrimethamine (SP), IPTp coverage increased from 41% in 2015 to 66% in 2020, contributing to a reduction in malaria-related maternal anaemia and low birth weight deliveries [22].

A key highlight was WHO's integration of malaria services into primary healthcare outreach sessions, where malaria diagnosis and treatment were bundled with immunisation and nutrition services. This model significantly increased treatment uptake and reduced stockouts, as logistics planning was coordinated across vertical programs.

Case Study 3: Sokoto State – Seasonal Malaria Chemoprevention (SMC) and Mobile Clinics

Sokoto, in the arid North-Western Sahel, has highly seasonal malaria transmission, peaking during the rainy season (July–October). WHO supported the Seasonal Malaria Chemoprevention (SMC) strategy here, which involves administering monthly antimalarial drugs to children under five during high-risk months.

Beginning in 2018, WHO worked with the Sokoto State Ministry of Health to develop microplans, train SMC drug distributors, and deploy mobile health teams to reach nomadic and hard-to-reach communities. The approach used fixed posts in health centres and door-to-door outreach in villages.

WHO provided training on pharmacovigilance, ensured safe drug storage, and developed simplified reporting tools. In 2021 alone, over 900,000 children received SMC in Sokoto, with reported adherence rates above 85% [23]. Community acceptability was high due to the WHO's emphasis on social mobilisation and inclusion of local leaders in campaign planning.

Additionally, WHO supported malaria case mapping and tracking using GPS-enabled tools. These were used to improve coverage and evaluate performance. The state saw a 40% drop in reported malaria cases among under-fives between 2018 and 2021, strongly correlated with SMC rollout [24].

Case Study 4: Ebonyi State – Data Systems Strengthening and Facility-Based Diagnosis

Ebonyi, located in the South-East, faced significant challenges related to poor data quality and inconsistent diagnosis. WHO interventions in the state emphasised health worker training, data system digitisation, and clinical mentorship.

Beginning in 2017, WHO trained health personnel across 13 LGAs on malaria diagnosis using RDTs and microscopy. Clinical mentors, backed by WHO, regularly visited facilities to ensure adherence to test-before-treat protocols, monitor drug use, and support data entry into the District Health Information Software 2 (DHIS2) platform.

Through WHO's support, Ebonyi was one of the early adopters of real-time malaria case tracking, using mobile apps that allowed facility workers to report case data, stock levels, and treatment outcomes. These reports were integrated into local dashboards and reviewed monthly during malaria coordination meetings facilitated by WHO.

Another intervention involved facility-based health talks, where WHO-trained staff educated pregnant women and caregivers during antenatal and immunisation days. These sessions promoted ITN use, early care-seeking, and treatment completion. As a result, Ebonyi improved malaria data completeness from 45% in 2016 to over 90% by 2020. The proportion of confirmed malaria cases treated with ACTs also increased, improving patient outcomes and reducing overtreatment.

This case illustrates WHO's pivotal role in building health information infrastructure and improving clinical practices.

Synthesis and Lessons Learned

These state-level examples underscore several key themes in the WHO's malaria control strategy in Nigeria:

1. Contextual Adaptation: Whether in urban Kano, forested Cross River, arid Sokoto, or transitioning Ebonyi, WHO tailors its approach to the local epidemiological and infrastructural realities.
2. Community Involvement: Success is often tied to strong community engagement, mobilisers, CORPs, and traditional leaders, all of whom help increase intervention uptake.
3. Integration and Coordination: WHO fosters synergies between malaria control and other health services, improving efficiency and coverage.
4. Data and Monitoring: WHO's emphasis on digital tools and health information systems enhances transparency and allows for targeted responses.
5. Partnership Model: WHO does not work alone but builds capacity within government and civil society structures, ensuring sustainability.

Despite successes, challenges persist, particularly in achieving full coverage, overcoming drug resistance, and sustaining gains in areas with poor governance or insecurity. Nevertheless, these case studies show that with the WHO's technical leadership and Nigeria's political commitment, malaria control is feasible and scalable.

The strategic pillars of WHO's intervention, medical technology, vector control, capacity building, funding coordination, and community engagement, are executed with careful attention to local context. Technologies such as RDTs, ACTs, LLINs, and DHIS2 platforms form the backbone of the clinical and surveillance response. Simultaneously, vector control

strategies like indoor residual spraying and the deployment of next-generation nets demonstrate the WHO's responsiveness to emerging insecticide resistance.

The importance of financial and institutional capacity has also been emphasised. WHO's involvement in budgeting, donor coordination, and workforce training has helped reduce inefficiencies and increase Nigeria's readiness to implement and sustain large-scale interventions. Through the High Burden to High Impact (HBHI) framework, WHO supports Nigeria in focusing resources where they are most needed, while ensuring performance accountability.

Furthermore, the WHO's emphasis on grassroots participation using community-oriented resource persons, religious leaders, and school systems reflects a commitment to inclusive health service delivery. This people-centred approach not only expands coverage but builds long-term behavioural change, an essential ingredient for malaria eradication.

Case studies from Kano, Cross River, Sokoto, and Ebonyi highlight how WHO's strategies adapt to geographic, cultural, and political differences. These state-level examples reveal both measurable health gains and ongoing implementation challenges. While the WHO-led strategies have contributed to reducing malaria incidence, improving diagnostics, and expanding access to care, they are also constrained by persistent health system weaknesses, funding gaps, and insecurity in certain regions.

Conclusion

The WHO's approach in Nigeria is comprehensive, multi-tiered, and adaptive. It continues to evolve in response to new threats and opportunities, positioning the country to make further strides toward malaria elimination. The next chapter will explore the remaining challenges in greater depth and consider how WHO can work with national partners to overcome them.

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CHAPTER FOUR

ASSESSMENT OF WHO'S MALARIA EFFORTS IN NIGERIA

Introduction

Improvements in Malaria Statisticss

The measurable impact of the World Health Organisation's (WHO) interventions in Nigeria is most evident in the gradual but significant improvements in malaria statistics recorded over the past two decades. Malaria has long been the leading cause of morbidity and mortality in the country, especially among children under five and pregnant women. However, a combination of the WHO's technical guidance, advocacy, and partnership with national institutions has led to notable progress. Data from both WHO and the Nigeria Malaria Indicator Surveys (NMIS) demonstrate clear reductions in prevalence, mortality, and incidence, alongside increases in preventive coverage and access to effective treatment. While Nigeria continues to carry the highest global malaria burden, representing approximately 27% of global cases, the downward national trends in key health statistics reveal that WHO-supported programs have had an undeniable effect on malaria outcomes in the country [1].

One of the clearest indicators of progress is the decline in malaria prevalence among children under five. In 2010, surveys showed that 42% of under-fives in Nigeria tested positive for malaria parasites, a figure that dropped to 23% by 2018 and further to 22% in 2021 [2]. These improvements cannot be separated from WHO's influence on preventive strategies, particularly the distribution of long-lasting insecticidal nets (LLINs) and intermittent preventive treatment in pregnancy (IPTp). Ownership of nets rose from 8% of households in 2008 to over 61% in 2021. Data from regions such as Cross River and Ebonyi suggest that net

use among children under five exceeded 70% in households where WHO-led sensitisation campaigns were conducted [3].

Mortality statistics also reflect WHO's influence. Malaria deaths, particularly among children under five, have declined by about 30% since 2000 [4]. It is strongly correlated with the nationwide transition from chloroquine to artemisinin-based combination therapies (ACTs), a shift that WHO actively guided. The introduction of the "test, treat, track" initiative ensured that treatment was based on confirmed diagnosis, improving outcomes and reducing misuse of antimalarials. The increased use of rapid diagnostic tests (RDTs), particularly in rural health facilities, was a central component of this approach.

Another area of progress has been seasonal malaria chemoprevention (SMC) in northern Nigeria. Following the WHO's recommendation in 2012, Nigeria adopted SMC as a preventive strategy for children under five in states with highly seasonal transmission. By 2021, over 22 million children in 12 northern states were covered by SMC campaigns. Evidence shows that these interventions reduced malaria incidence among under-fives by up to 40% during the rainy season [5].

Pregnant women have also benefited. The uptake of IPTp increased from 13% in 2010 to 57% in 2021. It reflects WHO's support for the training of midwives, revision of clinical guidelines, and reinforcement of drug safety surveillance. As a result, maternal anaemia rates and low birth weight deliveries in malaria-endemic areas have shown measurable declines [6].

WHO's contribution extends to strengthening malaria data systems. The deployment of District Health Information Software 2 (DHIS2), supported by WHO, has transformed malaria reporting. Between 2015 and 2021, the completeness of reporting increased from below 60% to above 85% in many states. In addition, WHO's support for entomological surveillance

generated data on mosquito resistance patterns, which informed the switch to PBO-enhanced LLINs.

Despite these gains, malaria statistics still reflect disparities. Southern states, such as Lagos, Anambra, and Ekiti, report prevalence rates below 10%, while northern states, including Kebbi, Sokoto, and Borno, continue to record prevalence rates above 40%. These disparities highlight the profound impact of poverty, insecurity, inadequate health infrastructure, and governance gaps. Nonetheless, the overall national picture shows progress: steady downward trends in prevalence, mortality, and maternal-child morbidity reveal the effectiveness of WHO's interventions even in the face of systemic challenges.

Public Health Outcomes

The influence of the World Health Organisation (WHO) on Nigeria's malaria response extends beyond statistical reductions in prevalence and mortality, manifesting in wider public health outcomes that affect maternal and child health, community resilience, and the broader health system. Malaria, being both a medical and socio-economic challenge, has long undermined public health indicators in Nigeria, contributing to high infant mortality, maternal morbidity, school absenteeism, and loss of productivity. WHO's interventions have helped to alleviate these pressures, creating ripple effects that strengthen the health system as a whole and improve the quality of life for millions of Nigerians.

The benefits of WHO's malaria programs also extend to maternal health. Pregnant women are particularly vulnerable to malaria, and infection increases the risk of maternal anaemia, miscarriages, stillbirths, and low birth weight babies. By promoting intermittent preventive treatment in pregnancy (IPTp) and strengthening antenatal care, WHO has helped reduce maternal mortality and improve neonatal survival rates. The rising uptake of IPTp across

Nigeria, growing from 13% in 2010 to more than 50% in 2021, has translated into healthier pregnancies and fewer complications linked to malaria [7].

At the community level, WHO's malaria interventions have also had measurable effects. The training of community-oriented resource persons (CORPs) and community health workers has not only improved malaria diagnosis and treatment but also created a network of frontline responders capable of managing other diseases. These health agents often expand their role to cover routine immunisation, maternal health, and health education, thereby strengthening the primary health care framework.

Another outcome is the reduction of the economic burden of malaria on households. Before widespread WHO-supported interventions, malaria caused high absenteeism in schools and workplaces. By reducing the frequency and severity of malaria infections, WHO's strategies have eased this burden. Families now save in direct healthcare costs and in opportunity costs associated with lost labour and school days.

WHO's malaria programs have also contributed to improved public confidence in the health system. With WHO's support for the "test, treat, track" initiative and the availability of subsidised diagnostic and treatment services, more families are turning to formal healthcare. This shift not only improves malaria outcomes but also builds trust in the health system.

However, outcomes remain uneven. Some rural and conflict-affected zones still struggle with poor access. In Borno State, insecurity has disrupted health campaigns, leaving many children unprotected. Nonetheless, where WHO-supported strategies have been fully implemented, communities consistently report reductions in disease burden and improved maternal and child health.

Challenges Faced

While the World Health Organisation (WHO) has played an indispensable role in Nigeria's fight against malaria, the road to eradication remains fraught with complex challenges. These challenges are structural, financial, socio-cultural, and environmental, highlighting the difficulties of implementing global health strategies in a diverse and resource-constrained country.

One of the most persistent challenges is inadequate and unsustainable funding. Although the WHO has coordinated financial inflows from donors such as the Global Fund and the U.S. President's Malaria Initiative, malaria eradication in Nigeria remains underfunded. Domestic allocations are insufficient and inconsistent, resulting in a fragile system that is heavily dependent on donor priorities. When donor commitments are delayed or reduced, interventions such as LLIN distribution or seasonal chemoprevention are disrupted.

Closely linked to funding is the weak capacity of the health system. Nigeria's infrastructure is overstretched and unevenly distributed. Poorly staffed and under-equipped facilities serve rural communities. WHO has trained thousands of community health workers, but high turnover undermines sustainability. Skilled workers often leave rural postings, creating gaps that weaken continuity of interventions.

Socio-cultural barriers also hinder programs. Misconceptions about malaria's causes discourage consistent use of preventive measures. Gender dynamics, particularly in northern Nigeria, restrict women's access to healthcare. WHO has integrated culturally sensitive communication strategies, but overcoming these social norms requires long-term engagement.

Political and governance issues further impede efforts. Nigeria's federal structure demands coordination across multiple levels, but commitment varies. While some states, such as Cross

River, demonstrate leadership, others lag. Corruption and mismanagement of funds weaken programs, with delayed disbursements and irregularities in procurement [8].

Insecurity in the North-East also disrupts interventions. Many communities in Borno remain inaccessible due to conflict, leaving populations without LLINs or treatment. IDP camps, often overcrowded, fuel transmission. WHO has deployed mobile health teams, but insecurity continues to undermine progress.

Environmental factors exacerbate challenges. Nigeria's tropical climate provides ideal conditions for mosquito breeding, and changes in rainfall linked to climate change have expanded the transmission windows. Urbanisation without proper drainage fuels urban malaria. Collaboration with environmental agencies is weak, leaving gaps in vector control.

Data quality and surveillance, though improving, remain problematic. Despite the WHO's support for DHIS2, many facilities still underreport due to poor internet connectivity, a lack of staff, or weak motivation. It creates blind spots and hampers resource allocation.

Community-level behavioural issues persist. While ownership of nets has risen, consistent use is lower than expected. Some households repurpose nets, while others avoid them due to discomfort. Adherence to ACT regimens is not universal, as patients often discontinue treatment once their symptoms subside.

Challenges include funding gaps, workforce shortages, resistance, cultural barriers, governance weaknesses, insecurity, climate pressures, poor data, and behavioural inconsistencies. WHO has mitigated many of these obstacles, but systemic weaknesses continue to limit impact, explaining why Nigeria still bears the highest malaria burden globally.

Comparative Analysis with Other Countries

The fight against malaria is not unique to Nigeria, as other countries in Africa and beyond share similar challenges and have engaged with the World Health Organisation (WHO) to tackle the disease. Comparing Nigeria's malaria control efforts with those of other countries provides an opportunity to highlight both achievements and shortcomings, while also identifying transferable lessons. Such a comparative analysis is instrumental given that Nigeria alone accounts for more than a quarter of global malaria cases. Examining contexts such as Ethiopia, Rwanda, Ghana, and Tanzania helps illuminate how WHO's strategies have been applied across different settings and what Nigeria can learn to accelerate its progress.

Ethiopia offers an interesting case study of WHO-supported malaria control. Unlike Nigeria, Ethiopia has a more diverse malaria ecology, with transmission mainly limited to specific lowland areas, while highland populations experience much lower risk. WHO's interventions in Ethiopia have focused heavily on stratified approaches that allocate resources according to risk zones, with significant success. Between 2000 and 2020, Ethiopia reduced malaria mortality by nearly 65%, a feat attributed to the strong integration of WHO strategies into the national health system [9]. Nigeria, by contrast, has struggled to adopt a similarly stratified approach due to the widespread and intense transmission across nearly all ecological zones. However, Ethiopia's success in decentralising decision-making to regional states while maintaining strong federal oversight could provide Nigeria with a model for better state-level coordination under the guidance of the WHO.

Rwanda provides another comparative context, often celebrated as one of the most successful malaria control stories in sub-Saharan Africa. Since the early 2000s, Rwanda has implemented WHO-supported interventions with remarkable efficiency, including mass distribution of insecticide-treated nets, indoor residual spraying, and ACT adoption. Crucially, Rwanda's

government demonstrated political commitment by consistently allocating domestic funds to malaria, ensuring that reliance on external donors did not undermine sustainability. As a result, Rwanda reduced malaria prevalence among under-fives from 82% in 2000 to below 10% by 2015 [10]. Nigeria, despite having more resources in absolute terms, has been unable to replicate Rwanda's level of success mainly due to weak political prioritisation, poor governance, and uneven state-level leadership. The Rwandan example highlights the importance of political will and domestic accountability, areas in which Nigeria must improve despite the WHO's continuous advocacy for more substantial ownership.

Comparisons can also be drawn outside of Africa, particularly with Sri Lanka, which was certified malaria-free by the WHO in 2016. Sri Lanka's success demonstrates that eradication is achievable with sustained political commitment, community participation, and adaptive use of WHO guidelines. The country's approach included rigorous case surveillance, rapid response to outbreaks, and strong collaboration between government, WHO, and local communities [11]. Although Nigeria's transmission context is far more complex, Sri Lanka's experience emphasises that malaria elimination is not just a medical challenge but also a governance challenge requiring coordinated national action.

When comparing Nigeria to these countries, several themes emerge. First, political commitment is the most decisive factor. Countries such as Rwanda and Sri Lanka aligned their national priorities with WHO strategies and invested significant domestic resources, thereby ensuring continuity even when donor support fluctuated. Nigeria, by contrast, has often relied excessively on external donors, which creates vulnerabilities and reduces sustainability. Second, the use of data for decision-making is a consistent marker of success. Ethiopia, Tanzania, and Rwanda all made significant improvements by ensuring that surveillance data guided interventions, while Nigeria still contends with weak data quality despite the WHO's

support. Third, community engagement has proven crucial across countries. In Rwanda, Ghana, and Sri Lanka, local communities were central to malaria control, while in Nigeria, socio-cultural barriers continue to limit consistent adoption of preventive measures.

The comparative analysis also reveals that Nigeria's sheer size and diversity present unique challenges not faced by smaller or less populous countries. With over 200 million people spread across different climates and cultural settings, Nigeria's malaria problem is on a scale that dwarfs that of Rwanda or Ghana. This scale complicates logistics, increases costs, and demands more nuanced, state-level approaches. WHO has recognised this complexity and has tried to address it through the High Burden to High Impact (HBHI) initiative, which prioritises high-transmission states. Nevertheless, Nigeria's internal governance weaknesses mean that the benefits of the WHO's strategies are not realised uniformly across the federation.

Stakeholder Testimonies

The impact of the World Health Organisation's (WHO) interventions in Nigeria's malaria control efforts is not only reflected in national statistics but also in the voices and testimonies of those directly involved in or affected by these programs. Stakeholder testimonies, from health workers, policymakers, community leaders, and beneficiaries, provide critical insights into how WHO's strategies are experienced on the ground and how they shape perceptions of public health. These perspectives enrich the understanding of WHO's role, revealing not just technical achievements but also human experiences of progress, challenges, and transformation.

Healthcare workers, particularly those at the frontline of malaria control, often testify to the difference that WHO-supported training and resources have made in their work. A nurse in Ebonyi State described how the introduction of rapid diagnostic tests (RDTs) transformed

clinical practice by ensuring that patients received appropriate treatment. Before the adoption of the WHO's "test, treat, track" initiative, many facilities relied on presumptive treatment, which often led to misdiagnosis and wasted drugs.

Community leaders have also spoken about the visible impact of WHO's malaria interventions. In Cross River State, village chiefs testified to the effectiveness of community-oriented resource persons (CORPs) trained under WHO's guidance. These CORPs, drawn from the local population, are trusted by households and have been crucial in encouraging families to use insecticide-treated nets consistently and to complete prescribed malaria treatments. A community leader in Yakurr noted that malaria deaths in children had become far less common in recent years, attributing the change to the combination of net distribution and health education campaigns facilitated by the WHO. Such testimonies affirm the importance of community engagement and culturally sensitive approaches in ensuring the success of malaria programs.

Policymakers and program managers within the National Malaria Elimination Programme (NMEP) have testified to the indispensable role of the WHO in coordinating donor support and providing technical expertise. A senior NMEP official remarked that without the WHO's involvement, Nigeria's malaria response might have been fragmented and inconsistent, as donor agencies often come with their own priorities and reporting frameworks. WHO's ability to harmonise strategies, set technical standards, and monitor accountability has helped maintain coherence in a complex landscape of partners. Testimonies like this underscore the WHO's value as a neutral arbiter that ensures Nigeria's malaria programs align with global best practices while adapting to local contexts.

At the household level, mothers often express relief at the benefits of interventions such as intermittent preventive treatment in pregnancy (IPTp) and seasonal malaria chemoprevention (SMC). A mother in Sokoto State described how her two youngest children, who received SMC drugs regularly during the rainy season, rarely fell ill with malaria, unlike her older children, who grew up before the program was introduced. Similarly, pregnant women attending antenatal clinics in Kano testified that IPTp helped them avoid complications such as anaemia, which had plagued them in previous pregnancies. These accounts illustrate the tangible differences WHO-backed strategies make in everyday life, especially for vulnerable groups who historically bore the brunt of malaria's burden.

International partners and NGOs working alongside the WHO also provide testimonies about the collaborative impact of malaria programs. Staff from organisations such as the Global Fund and USAID have acknowledged that WHO's role in providing technical guidance and monitoring ensures that their investments achieve meaningful outcomes. One partner official noted that WHO's credibility with both the Nigerian government and local communities makes it easier to implement donor-funded projects, as WHO's presence lends legitimacy and fosters trust. These external testimonies demonstrate how WHO's interventions amplify the efforts of other stakeholders, creating synergies that extend beyond its direct programs.

At the same time, stakeholder testimonies also highlight ongoing challenges. Health workers in Borno State have expressed frustration that insecurity prevents them from reaching entire communities, despite the WHO's mobile outreach efforts. Community members in some rural areas testify that, although they receive nets, they often do not use them consistently due to heat and discomfort, highlighting gaps in behaviour change communication. Policymakers acknowledge that while the WHO provides critical technical support, implementation often falters due to delays in domestic funding and bureaucratic inefficiencies. These testimonies

remind us that while WHO's role is crucial, it cannot by itself overcome all the systemic and contextual barriers that Nigeria faces in eradicating malaria.

Conclusion

The assessment of the World Health Organisation's (WHO) malaria interventions in Nigeria reveals a complex but largely positive trajectory of progress. Over the past two decades, WHO's influence has been visible in the measurable decline in malaria prevalence, mortality, and morbidity, particularly among children under five and pregnant women. The adoption of WHO-endorsed strategies such as rapid diagnostic testing, artemisinin-based combination therapies, insecticide-treated nets, intermittent preventive treatment in pregnancy, and seasonal malaria chemoprevention has changed the public health landscape, providing millions of Nigerians with access to preventive and curative care that was previously limited or unavailable. These interventions have translated into improved child survival rates, healthier pregnancies, stronger community health systems, and increased trust in the health sector, all of which are significant public health outcomes.

Comparative experiences from other countries highlight both the opportunities and the gaps. Rwanda and Ethiopia demonstrate the importance of political will and data-driven decision-making, Ghana illustrates the benefits of embracing innovations such as the malaria vaccine, and Sri Lanka shows that eradication is achievable when national governments take strong ownership of WHO strategies. Nigeria, by contrast, has made progress but still struggles to integrate these lessons fully due to its size, diversity, and governance challenges.

The WHO's interventions have made a significant impact on malaria control in Nigeria. However, eradication remains a long-term goal that requires not only global technical support but also national determination. The testimonies of stakeholders, from health workers to

mothers, affirm the tangible benefits of WHO's involvement, while also reminding us that the fight against malaria is far from over. For Nigeria to move from control toward elimination, WHO's strategies must be matched by robust domestic investment, political leadership, and sustained community engagement.

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CHAPTER FIVE

SUMMARY, RECOMMENDATIONS AND CONCLUSION

Summary of Findings

The assessment of the World Health Organisation's (WHO) interventions in Nigeria reveals a broad, multifaceted picture of progress, challenges, and opportunities in the country's malaria eradication efforts. Malaria continues to represent Nigeria's most significant public health challenge, accounting for the highest share of global cases and deaths. However, this study has found that the WHO's sustained engagement with Nigeria over several decades has contributed to measurable improvements in malaria control indicators, strengthened the health system, and supported the broader public health landscape.

One of the most important findings is the significant reduction in malaria prevalence and mortality, particularly among vulnerable groups. Another key finding is that the WHO's influence extends beyond statistics, shaping broader public health outcomes. The organisation's support for health worker training, community health systems, and data management platforms like DHIS2 has enhanced the resilience of Nigeria's health infrastructure. Communities report fewer child deaths, healthier pregnancies, and greater trust in health facilities where WHO-backed programs have been fully implemented. Furthermore, WHO's interventions have helped reduce the economic burden of malaria on households, leading to savings in treatment costs and fewer days lost to illness and caregiving responsibilities.

The study also finds that the WHO has played an indispensable role as a coordinating and standard-setting body. In a context where multiple donors and development partners operate, WHO's technical guidance has ensured coherence in Nigeria's malaria strategies. Its role in

harmonising donor support, developing national guidelines, and monitoring accountability has prevented fragmentation and inefficiencies in the malaria response.

Despite these achievements, this study has also uncovered significant challenges that limit the full effectiveness of WHO's interventions. Funding remains a major obstacle, with Nigeria relying heavily on external donors for malaria programs while contributing insufficient domestic resources. Health system weaknesses, including shortages of skilled workers, under-resourced rural facilities, and high staff turnover, further constrain the reach and impact of WHO-supported interventions.

Resistance to antimalarial drugs and insecticides also poses a growing threat to malaria control in Nigeria. Pyrethroid resistance in mosquito vectors and declining efficacy of some treatment regimens undermine the effectiveness of ITNs and ACTs. WHO has supported the introduction of next-generation tools such as PBO-enhanced ITNs, but the scale of distribution has not yet matched the scale of resistance.

Socio-cultural barriers remain another limitation. Misconceptions about malaria, gender dynamics, and resistance to behaviour change reduce consistent use of preventive tools such as ITNs. Testimonies from communities show that while ownership of nets has increased, consistent usage lags due to discomfort in hot weather or alternative uses of the nets.

In addition, Nigeria's political and governance environment complicates the WHO's efforts. While some states, such as Cross River, have shown leadership in malaria control, others lack the political will or administrative capacity to implement programs fully. Corruption and mismanagement of funds weaken program effectiveness, and Nigeria's federal structure often results in poor coordination between the national and state levels. Insecurity in the North-East further disrupts interventions, leaving entire populations underserved.

Comparative analysis with other countries has shown that Nigeria lags behind Rwanda, Ghana, and Tanzania. Rwanda demonstrates the power of political commitment and domestic funding; Ghana illustrates the benefits of adopting WHO-endorsed innovations such as the malaria vaccine; and Tanzania highlights the importance of real-time surveillance and data-driven decision-making. Sri Lanka's malaria-free status further proves that eradication is achievable when the WHO's guidance is matched by strong national ownership.

The findings of this study indicate that the WHO's impact on malaria control in Nigeria has been significant, leading to measurable improvements in prevalence, mortality, maternal health, and community resilience. However, these gains are tempered by persistent challenges, including underfunding, systemic weaknesses, resistance, socio-cultural barriers, and governance issues. The evidence suggests that while WHO's support is necessary and has made a profound difference, it is not sufficient to achieve eradication unless Nigeria strengthens its domestic ownership, political commitment, and health system capacity.

Policy Recommendations

The findings of this study demonstrate that while the WHO's interventions have significantly improved malaria control in Nigeria, a range of policy reforms is required to consolidate gains and move closer to eradication. These recommendations focus on governance, financing, health systems, community engagement, innovation, and accountability.

An important recommendation is the urgent need to increase domestic funding for malaria programs. Nigeria's overreliance on external donors undermines sustainability. The government should legislate for earmarked funding in federal and state budgets, covering commodities such as insecticide-treated nets, artemisinin-based therapies, and health worker training. Political prioritisation of malaria is essential, and budgetary allocations must reflect

the scale of the disease's burden. WHO should continue to advocate for domestic financing while providing technical assistance for accountability?

Strengthening Nigeria's health system, particularly at the primary health care level, is another priority. Malaria control is most effective when preventive and treatment services are integrated into routine health delivery. Policymakers must invest in training and retaining frontline health workers in rural areas. Health facilities must also be equipped with diagnostics, digital reporting platforms, and reliable drug supplies.

Addressing resistance requires investment in research and innovation. Nigeria must expand surveillance for drug efficacy and insecticide resistance and scale up the use of next-generation nets and vector control methods. Policymakers should also prepare for the phased introduction of the WHO-endorsed RTS, S malaria vaccine, with frameworks for procurement, cold chain logistics, and community engagement.

Community engagement must be central. Sustained education campaigns are necessary to promote consistent use of nets and adherence to treatment. Partnerships with community organisations, religious institutions, and schools should deliver culturally sensitive messages. WHO can support by providing technical materials, but Nigerian institutions must lead.

Insecurity in the North-East demands' integration of malaria control with humanitarian assistance. Policies should expand partnerships with the WHO and NGOs to deliver mobile health services, with a focus on training internally displaced persons as community health volunteers.

Accountability is also crucial. Nigeria should establish independent monitoring and evaluation units to track malaria funds and publish regular reports. Transparency will help build public trust and donor confidence.

The key recommendations are increased domestic financing, stronger health systems, investment in innovation, enhanced community engagement, integration of services in conflict zones, and improved accountability. WHO's role remains indispensable, but Nigeria must take more substantial ownership to sustain progress.

Suggestions for WHO and the Nigerian Government

The findings of this research make it clear that the eradication of malaria in Nigeria requires joint responsibility between the World Health Organisation (WHO) and the Nigerian government. While WHO provides global leadership, technical expertise, and coordination, Nigeria must demonstrate more substantial ownership and commitment to ensure that interventions are sustainable and contextually effective. The following suggestions, directed at both actors, focus on strengthening cooperation, bridging existing gaps, and ensuring a pathway toward eventual eradication.

For WHO, one key suggestion is to deepen its role in technical innovation and adaptive strategy. While WHO has successfully introduced tools such as rapid diagnostic tests (RDTs), artemisinin-based combination therapies (ACTs), and insecticide-treated nets (ITNs), Nigeria's unique burden demands greater support for next-generation interventions. WHO should continue to guide Nigeria in scaling up PBO-enhanced ITNs, indoor residual spraying, and larval source management, especially in urban areas where conventional measures are less effective. In addition, the WHO should expand its technical assistance for the phased introduction of the RTS, S malaria vaccine, ensuring that Nigeria does not lag behind other

African countries such as Ghana. It includes advising on cold-chain systems, logistics, and monitoring mechanisms to guarantee equitable vaccine distribution.

WHO must also strengthen its advocacy for political commitment at the highest levels of Nigerian governance. While technical expertise has been abundant, the absence of strong domestic ownership has slowed progress. WHO should leverage its position as a neutral but authoritative actor to press Nigerian leaders to prioritise malaria eradication as a national development goal, not merely a health issue. By framing malaria control in terms of economic productivity, maternal and child health, and poverty reduction, the WHO can make a compelling case that eradication aligns with Nigeria's broader development agenda. Furthermore, the WHO should facilitate more peer-to-peer learning exchanges, allowing Nigerian policymakers to engage directly with counterparts from countries like Rwanda and Sri Lanka, where malaria control has been highly successful.

The Nigerian government must also address systemic weaknesses in its health system. It means investing in the recruitment, training, and retention of frontline health workers, particularly in rural and conflict-affected areas. Health workers require incentives, career development opportunities, and adequate working conditions to remain in their posts. In addition, facilities must be equipped with reliable diagnostics, drugs, and data-reporting infrastructure. Without such investments, the WHO's technical guidance cannot be effectively translated into practice. The government should also strengthen its surveillance systems, ensuring that data collection is timely, accurate, and used for decision-making. Learning from countries like Tanzania and Nigeria must ensure that malaria surveillance is integrated into broader health information systems, making it central to planning and accountability.

Community engagement is another critical area where both the WHO and the Nigerian government must do more. Misconceptions about malaria persist, and net usage remains inconsistent despite widespread distribution. The Nigerian government should invest in community-driven campaigns, using trusted religious leaders, traditional authorities, and school systems to reinforce health education. WHO can support this by providing evidence-based communication strategies and training materials tailored to Nigeria's cultural and linguistic diversity. Together, both actors must ensure that behaviour change is continuous rather than limited to campaign periods.

Addressing insecurity in malaria-endemic regions also requires joint strategies. The Nigerian government must commit to improving security conditions in the North-East, while also developing policies that integrate malaria control into humanitarian responses. WHO should expand its mobile health services in hard-to-reach areas and provide technical guidance on training internally displaced persons as community health volunteers. This dual approach ensures that malaria interventions reach vulnerable populations even in conflict zones.

Finally, accountability and governance reforms are essential. The Nigerian government must reduce corruption and inefficiencies that weaken malaria programs. Establishing independent monitoring and evaluation units, as well as transparent reporting mechanisms, will help ensure that resources are used effectively. WHO can provide technical support for financial accountability frameworks and help build institutional capacity for transparent program management. However, it is ultimately the responsibility of the Nigerian government to create an environment where accountability is not optional but central to public service.

Conclusion: Toward a Malaria-Free Nigeria

The fight against malaria in Nigeria has been long and arduous, but the evidence presented in this study demonstrates that progress is not only possible but already underway. The World Health Organisation (WHO) has been instrumental in shaping Nigeria's malaria response through technical guidance, policy harmonisation, community-level interventions, and the introduction of innovative preventive and treatment tools. The impact of these efforts is visible in the measurable reduction in malaria prevalence, mortality, and morbidity over the past two decades, particularly among children under five and pregnant women. Beyond statistics, WHO's interventions have also strengthened Nigeria's health system, increased community trust in health services, and reduced the economic burden of malaria on households.

However, this conclusion cannot ignore the persistent challenges that continue to limit Nigeria's progress toward eradication. Funding shortfalls, health system weaknesses, resistance to drugs and insecticides, cultural barriers, insecurity, and governance deficiencies remain critical obstacles. These challenges explain why Nigeria still bears the highest malaria burden globally despite years of WHO support and donor investment. The comparison with countries like Rwanda, Ghana, and Sri Lanka underscores that eradication is not an unattainable dream. However, it requires unwavering political commitment, strong domestic financing, and efficient implementation of the WHO's strategies.

The road to a malaria-free Nigeria, therefore, rests on a strengthened partnership between WHO and the Nigerian government, with each actor fulfilling complementary responsibilities. WHO must continue to innovate, advocate, and provide technical expertise, while Nigeria must assume ownership of the fight by investing resources, strengthening health systems, and ensuring accountability. Communities must also remain at the centre of interventions, as

sustainable change depends on consistent behavioural adoption of preventive measures and trust in health systems.

Nigeria has reached a turning point. The gains achieved so far prove that malaria can be controlled, and even eradicated, with the right blend of global guidance and local leadership. A malaria-free Nigeria is not merely a health goal; it is a pathway to greater economic productivity, improved maternal and child health, and national development. If Nigeria can consolidate WHO's technical support with robust domestic action, the vision of a malaria-free future can be transformed from aspiration into reality.

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