

Research Article

Bringing the Neglected out of Neglected Tropical Diseases: A Systematic Literature Review

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Abstract

Neglected Tropical Diseases (NTDs) represent a group of infectious diseases that disproportionately impact the world's most vulnerable and marginalized populations. Affecting over 1.7 billion people globally, NTDs are most prevalent in sub-Saharan Africa, Southeast Asia, and parts of Latin America, where poverty, inadequate sanitation, and limited healthcare infrastructure are common. Despite their significant health, social, and economic burden, these diseases remain underreported and underprioritized in global health agendas. The objective of this review is to synthesize existing evidence on the epidemiology, control strategies, and emerging innovations in the fight against NTDs, with a focus on the global, African, and Cameroonian contexts. The study employs a mixed-method approach, incorporating literature review and case study analysis, to provide a comprehensive understanding of the challenges and opportunities in addressing NTDs. Key themes explored include the persistence of disease due to socio-political instability, weak healthcare systems, stigma, and funding shortfalls. The review also highlights ongoing interventions such as mass drug administration, community-based strategies, and innovations in diagnostics and vector control. Special attention is given to Cameroon, where nine of the twenty recognized NTDs are endemic. The review concludes that addressing NTDs requires a multifaceted, collaborative approach involving health system strengthening, community engagement, and increased investment. These efforts are essential to reduce the burden of NTDs and achieve the health-related targets of the Sustainable Development Goals (SDGs).

Keywords

Neglected Tropical Disease, Bringing, Out

1. Introduction

Neglected Tropical Diseases (NTDs) refer to a diverse group of diseases that primarily affect populations in impoverished tropical and subtropical regions [8]. The diseases, caused by a range of pathogens including bacteria, viruses, and parasites, often result in significant long-term health complications, including disability, stigma, and premature death [10]. Despite their pervasive impact, NTDs have historically received limited attention in global health policy,

resulting in underdiagnosis, poor access to treatment, and insufficient research funding. NTDs remain a major challenge to global health, particularly in low- and middle-income countries (LMICs). In recent years, however, there has been growing recognition of the need to address these diseases, both through increased funding and enhanced international cooperation. This systematic review aims to consolidate existing knowledge on NTDs, evaluate current strategies for

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their control, and identify emerging trends and solutions. According to Fru-Cho et al., Neglected Tropical Diseases (NTDs) represent a diverse group of communicable diseases that prevail in tropical and subtropical regions, particularly in areas with poor sanitation, inadequate healthcare access, and poverty. These diseases, often overshadowed by more high-profile conditions such as HIV/AIDS, tuberculosis, and malaria, disproportionately affect marginalized populations, perpetuating cycles of poverty and ill-health. Efforts to bring the neglected out of NTDs aim to address the systemic and contextual barriers that have allowed these diseases to persist [1].

2. Background

2.1. Global Context

Neglected Tropical Diseases (NTDs) represent a diverse group of communicable diseases that prevail in tropical and subtropical regions, particularly in areas with poor sanitation, inadequate healthcare access, and poverty [10]. These diseases, often overshadowed by more high-profile conditions such as HIV/AIDS, tuberculosis, and malaria, disproportionately affect marginalized populations, perpetuating cycles of poverty and ill-health. Efforts to bring the neglected out of NTDs aim to address the systemic and contextual barriers that have allowed these diseases to persist [1].

2.2. Burden and Impact Globally

Globally, NTDs affect over 1.7 billion people, primarily in low- and middle-income countries (LMICs). Key NTDs include schistosomiasis, leishmaniasis, lymphatic filariasis, onchocerciasis (river blindness), soil-transmitted helminths, and trachoma [2]. These diseases cause significant morbidity, including blindness, chronic pain, disfigurement, cognitive impairments, and stigma, which lead to economic loss and social exclusion [3]. The global health agenda has seen increased attention to NTDs through initiatives like the London Declaration on NTDs (2012), where governments, donors, and private sectors pledged to control or eliminate at least 10 NTDs by 2020. Similarly, the Sustainable Development Goals (SDGs), particularly Goal 3 (Good Health and Well-being), emphasize combating NTDs as part of universal health coverage. Despite progress, funding gaps, weak health systems, and socio-political challenges have hindered comprehensive action [1].

2.3. African Context

Africa bears the heaviest burden of NTDs, accounting for 40% of the global NTD cases, due to widespread poverty, tropical climate conditions, and insufficient healthcare infrastructure [4]. Key NTDs in Africa include onchocerciasis, schistosomiasis, lymphatic filariasis, trachoma, and

soil-transmitted helminths [11]. For instance: Schistosomiasis affects an estimated 200 million people worldwide, with over 90% of cases in sub-Saharan Africa [2]. Lymphatic filariasis significantly impacts countries like Nigeria, DR Congo, and Ethiopia [4], while trachoma remains a leading cause of preventable blindness in several African countries [5]. In response, regional bodies like the African Union and the World Health Organization Africa Region (WHO-AFRO) have prioritized NTDs through strategies such as the WHO NTD Roadmap (2021-2030), which aims for disease elimination and equitable healthcare access. Mass drug administration (MDA) campaigns and community health interventions have shown promise, though challenges remain with coverage, logistics, and sustainability [1].

2.4. Cameroon Context

Cameroon, with its diverse ecological zones, is endemic to 9 of the 20 recognized NTDs, including onchocerciasis, lymphatic filariasis, schistosomiasis, and soil-transmitted helminths [6]. The country's tropical and subtropical regions, coupled with socio-economic disparities, exacerbate the prevalence of these diseases. Onchocerciasis is endemic in parts of the Northwest, Southwest, and West Regions, causing blindness and debilitating skin conditions [7]. Also, schistosomiasis affects over 5 million people, particularly in rural and riverine communities [6]. Soil-transmitted helminths significantly impact children, leading to malnutrition, reduced cognitive function, and poor school performance [1]. Cameroon has made progress in tackling NTDs through: National Control Programs: Initiatives like mass drug administration for schistosomiasis and onchocerciasis, Collaborations with global organizations such as the WHO, the African Programme for Onchocerciasis Control (APOC), and donors like the Bill & Melinda Gates Foundation [6] and Community-Based Interventions: Training community health workers to distribute medication and raise awareness. However, persistent challenges such as inadequate funding, political instability (e.g., in the Anglophone regions), and limited access to healthcare services hinder the effectiveness of these programs [7]. Bringing the neglected out of NTDs requires an integrated approach addressing global, regional, and local contexts. Investments in research, healthcare infrastructure, and community engagement are essential. Recent analysis highlights persistent challenges in controlling onchocerciasis, despite decades of interventions [14]. In Cameroon, tackling NTDs must also involve addressing systemic inequities, strengthening health systems, and promoting multi-sectoral collaboration to ensure sustainable progress. More so, international partnership such as the global schistosomiasis alliance, have demonstrated the importance of collaborative approach in tackling neglected tropical disease [15].

3. The Global Burden of NTDs

NTDs are often overshadowed by high-profile diseases like HIV/AIDS, malaria, and tuberculosis. However, their cumula-

tive health impact is immense, causing chronic disabilities, blindness, disfigurement, and even death [3]. NTDs account for a significant portion of the global disease burden, yet they receive less than 0.6% of global health funding [2]. Global initiatives, such as the London Declaration on NTDs (2012) and the WHO NTD Roadmap (2021-2030), have spurred significant progress. These efforts include mass drug administration (MDA) campaigns, public-private partnerships, and community-based interventions. For example, global coverage for lymphatic filariasis treatment increased from 33% in 2012 to over 70% in 2020 [1]. Despite these advancements, challenges such as political instability, weak health systems, and inadequate funding persist.

4. Methods

This systematic review was conducted by searching peer-reviewed articles and grey literature from databases such as PubMed, Scopus, and Google Scholar. Studies published from 2010 to 2024 were considered, with a focus on epidemiological data, treatment strategies, control measures, and policy recommendations for NTDs. In total, 150 articles were included in this review, based on pre-defined inclusion criteria, which emphasized the quality of evidence and relevance to current global health strategies.

5. Results

5.1. Epidemiology of NTDs

NTDs affect millions of people worldwide, with a particularly high prevalence in sub-Saharan Africa, Southeast Asia, and parts of Latin America. Diseases such as malaria, schistosomiasis, lymphatic filariasis, and leprosy contribute significantly to the global burden of disease. Despite widespread knowledge of these diseases, the lack of accurate and comprehensive surveillance systems in affected regions complicates efforts to track their true prevalence [1]. Research reveals that NTDs primarily affect marginalized groups, including rural communities, children, and those living in poverty. In addition, climate change, migration, and conflict have exacerbated the spread and persistence of these diseases in certain regions [2, 8].

5.2. Challenges in Addressing NTDs

NTDs are neglected due to a combination of factors, including limited healthcare infrastructure, poverty, political instability, and insufficient funding for research and development. More so, Weld et al. [16] describe how marginalized groups are often doubly burdened by poverty and by being overlooked in global health policy. Vulnerable populations such as refugees face compounded risk due to intersection of NTDs and pandemics like COVID-19 [12]. The stigma asso-

ciated with NTDs further complicates efforts to improve public awareness, prevention, and care [3]. This neglect often leads to delayed diagnoses and inadequate treatment, increasing the burden of disease in affected populations.

5.3. Current Strategies for Control

The global response to NTDs has included various interventions, such as mass drug administration (MDA), vector control measures, improved sanitation, and integrated healthcare systems. The World Health Organization (WHO) has developed a “2030 Roadmap for NTDs,” which seeks to reduce the burden of these diseases through targeted interventions and enhanced global cooperation [4]. Despite these efforts, gaps remain in ensuring universal access to treatment, particularly in rural and conflict-affected areas [5].

5.4. Emerging Approaches and Innovations

Recent advances in diagnostic tools, treatment options, and vaccines offer hope for improving NTD control. Molecular diagnostics, for example, have facilitated quicker and more accurate detection of diseases such as malaria and schistosomiasis. Additionally, new therapeutic drugs are being developed to address drug resistance, which is an increasing challenge in managing diseases like lymphatic filariasis and onchocerciasis [3]. Recent innovations in vector control, including genetically modified mosquitoes and insecticide-treated nets, have shown promise in reducing the transmission of diseases such as malaria and dengue [5]. Furthermore, advances in digital health technologies are enhancing the monitoring and reporting of NTDs, allowing for better resource allocation and response [2].

6. Discussion

NTDs are often termed “neglected” because they primarily affect the world’s poorest populations, who have limited political and economic influence (Savioli et al., 2017). Addressing NTDs requires a multifaceted approach that integrates healthcare interventions with broader social, economic, and environmental improvements [14]. Strengthening health systems in affected regions, ensuring better access to essential medicines, and tackling the underlying determinants of poverty are essential to reducing the burden of these diseases [4]. While international organizations, such as the WHO and non-governmental organizations (NGOs), have made progress in fighting NTDs, more needs to be done to secure sustainable funding and political will [16]. A more integrated, collaborative approach that involves governments, international bodies, and affected communities is critical to achieving long-term success. More so, some disease like rickettsial infection remain under recognized even within the NTD category, representing critical blind spots in surveillance and funding [13].

The Role of Global Health Initiatives

Global health initiatives like the WHO's NTD roadmap and the UN's Sustainable Development Goals (SDGs) offer a comprehensive framework for addressing NTDs [11]. Integrating NTD control into broader health initiatives, such as maternal and child health, could improve efficiency and outcomes. Furthermore, creating a dedicated global fund for NTDs could ensure that sufficient resources are allocated to combat these diseases [3]. Although NTDs primarily affect tropical regions, they are also present in high-income countries, including Australia, highlighting the global nature of these disease [9].

7. Conclusion

Neglected Tropical Diseases represent a significant yet often overlooked burden on global health. While substantial progress has been made in raising awareness and developing interventions, more remains to be done to reduce the burden of these diseases, particularly in low- and middle-income countries. An integrated, collaborative approach, combined with sustained funding, research, and innovation, is essential to bring these diseases out of neglect and improve the health and well-being of millions of people worldwide.

Abbreviations

NTDs	Neglected Tropical Diseases
MDA	Mass Drug Administration
WHO	World Health Organization
NGOs	Non-Governmental Organizations
SDGs	Sustainable Development Goals

Author Contributions

Celestine Shalla: Conceptualization, Data curation, Investigation, Resources, Writing - original draft

Ngo Likeng Julianne Louise: Methodology, Supervision, Validation

Sone Samuel Njie: Formal Analysis, Software, Writing - review & editing

Conflicts of Interest

The authors declare no conflicts of interest.

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