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Exploring the implications of transitioning NTD program interventions to the primary health care system in Ethiopia: a case study

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B.A. Oglethorpe University, 2013

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An abstract of

A thesis submitted to the Faculty of the Rollins School of Public Health of Emory University in partial fulfillment of the requirements for the degree of

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Abstract

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By Jasmine Irish

The World Health Organization (WHO) published the WHO 2030 NTD Roadmap for 2021-2030 in January of 2021. The roadmap calls for sweeping changes in the way that neglected tropical disease (NTD) interventions are planned, funded, and evaluated, emphasizing unified country-owned NTD programming. This is a change from the previous ten-year period of NTD control and elimination efforts, which saw gains in 600 million fewer people requiring intervention, but was largely implemented and planned by non-governmental organizations (NGOs) outside of the Ministries of Health (MoH). This paper reports on the findings from a qualitative case study of Ethiopian NTD experts in order to identify the barriers and implications of the shift to country ownership. The findings mapped contextual factors affecting Ethiopia's transition to country ownership as competing political priorities in light of conflict in the country, a lack of political will to expand NTD programming, and a culture of dependence in the country on NGO support. We also found three main barriers to this transition are NTD funding, workforce capacity, and NTD data management capacity. Using qualitative in-depth interviewing offered a holistic and rich contextual analysis of the county's anticipated barriers from experts within the country. We discuss tools and approaches to address these barriers as well, including framework tools like the research fairness initiative evaluation tool which may be applicable to other countries who are transitioning to NTD program ownership.

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Purpose Statement

The purpose of this thesis is to explore the perspectives of experts from Ethiopia's NTD programs on the implications of the WHO 2030 NTD Roadmap goal of country ownership of NTD programs by 2030.

Background

The state of NTDS today

Neglected Tropical Diseases (NTDs) are a group of 20 diseases that are historically recognized as those that most affect the poorest and most marginalized populations in the world. NTDs are known to reduce the overall productivity of affected people to work or attend school, resulting in further marginalization and suffering. While some NTDs cause mortality, the morbidity resulting from NTDs has warranted a response from the global health community: NTDs were formally listed in the Sustainable Development Goal (SDG) target 3.3, which calls for the end to epidemics of NTDs (1).

Since the publication of the first NTD roadmap by the World Health Organization in 2010, a complex global network of public/private partnerships has aligned to shift progress toward the elimination of NTDs. Since then, 600 million fewer people require interventions for NTDs, and 42 countries have certified the elimination of at least one of the diseases (2). Despite impressive progress since 2010, countries have not met the majority of the NTD targets laid out in the

previous WHO roadmap. An estimated 1.74 billion people around the world still require NTD intervention (2).

While the global community has seen much progress in the control and elimination of NTDs, we know a shift is coming in how the WHO recommends they are managed. For instance, each NTD is reaching elimination status at a different rate due to differences in disease thresholds of elimination or control, which are dictated by WHO guidelines. In addition, NTD prevalence is affected by varying access to medicines, regional climate, and water, sanitation, and hygiene (WASH) infrastructure. Private pharmaceutical companies have donated billions of doses for the control of NTDs, as well as funding for interventions. Through these interventions, many NTDs are targeted via mass drug administration (MDA), a strategy that targets entire populations with preventive chemotherapy (PC) to decrease prevalence in the community. Organizations ranging from multilateral state aid funders to private donors or non-governmental organizations (NGOs) have contributed to the progress made in the control of NTDs today. The governments of NTD endemic countries have worked with these external partners to establish multiple, disease-focused vertical intervention platforms and delivery systems to reach the people most affected. Most NTD interventions are led and established by partners and funders who are focused on the elimination and control of a single NTD, which has resulted in siloed programs for each endemic NTD in a country. The separation of these intervention platforms creates the present piecemeal approach to the neglected tropical disease group.

The shift to country ownership

The World Health Organization (WHO) published the WHO 2030 NTD Roadmap for 2021-2030 in January of 2021 (2). While the document acknowledges the continued need for focused programmatic effort where significant gaps in NTD elimination still exist, it emphasizes a "more radical change" toward integrated health systems and mainstreaming care for NTDs. These cross-cutting structural changes are described at length in the NTD Roadmap, namely integrating NTD prevention and care into the primary health system. The goal as stated by the WHO 2030 road map is to move from the existing siloed NTD programs to an established NTD unit within the Ministry of Health that includes all endemic NTDs. This will prioritize country ownership of the NTD disease group as a unit, emphasizing disease elimination actions such as planning, implementation, and monitoring & evaluation. The shift to ownership also extends to financing, as WHO recommends that funding for NTD interventions come wholly from the countries themselves, though this is expected to be reached over a period of ten years. While the WHO 2030 road map for NTDs places national governments at the center of NTD decision-making as it relates to directing resources, structuring health systems, and coordinating with stakeholders, external partnerships will remain vital to achieving NTD elimination goals for the foreseeable future.

NTD Programming in Ethiopia

Ethiopia has a population of approximately 108 million people, 83% of whom live in rural villages. Almost 25% of the population lives below the poverty line, and Ethiopia has identified nine priority NTDs for the Ministry of Health (MoH) to address: Trachoma, soil-transmitted

helminthiasis (STH), schistosomiasis, lymphatic filariasis (LF), onchocerciasis, podoconiosis, guinea-worm disease, leishmaniasis, and scabies (3, 4).

Ethiopia is a geographically large country with a diverse population with many ethnic groups and languages. The Northern Region is the home to Tigray, a formerly politically dominant state that opposes the national government. In 2020, a civil war broke out between armies from Tigray and the federal Ethiopian government. As a result of the conflict, a humanitarian crisis has burgeoned in the country. Conflict in the country has stalled progress in NTD control, particularly in the regions where fighting has cut off access to carry out interventions.

Since the publication of the WHO Roadmap Ethiopia has made great strides in building a successful structural model for health extension with packages of essential health services, organizations of community health workers, communications, and more (5). Integrating NTDs into the Ethiopian primary healthcare system has not yet been studied or operationalized, and much work remains on the part of the international NTD community in this shift to ownership. This thesis seeks to address this gap in knowledge on what barriers and contextual factors exist that need to be addressed to facilitate the shift to country ownership.

Ethiopia began expanding its primary healthcare system in 2004 to increase its population’s access to basic services, from primary to tertiary care settings. Since then, a robust model of healthcare using over 30,000 trained Health Extension Workers (HEW) has been used to reach the largely poor, rural population of the country. During its establishment period, the Ethiopian Ministry of Health (MoH) defined an essential health services package (EHSP) that includes

broad categories of care that Ethiopian citizens now have access to via the over 2,800 health centers or 15,000 village health posts that have been established (5).

The EHSP went through a revision process in 2018, in which stakeholders and experts from around the world participated in the consultative process along with Ethiopian experts, primary care providers, and the MoH to revise the country's disease priorities. It is as yet unclear how the country will approach taking NTD programming from largely being planned and financed by external partners to integration into primary health settings. This is why seeking insight from NTD researchers, policymakers, and experts in the country is essential to identifying the challenges and barriers that remain before a successful transition can be achieved.

Significance

Since the publication of the WHO NTD Road map in 2021, country ownership of NTD programs has been a topic of great interest in the international community, from funding and implementation partners to the countries making the transition. While Ethiopia is considered a model for other low-and-middle-income countries (LMICs) with their current health extension program, they are not immune to the way NTDs have historically been approached by the international community. This thesis seeks to explore a different perspective on this transition by focusing on experts from within Ethiopia. By using the established international guidance through the WHO NTD Roadmap and seeking input from NTD experts within a country who is currently planning their transition to country-owned NTD programming, we can establish a more

robust understanding of the barriers to this transition from the point of view of the country and start to identify strategies and tools that can help them bridge the gaps.

Methods

This thesis utilized a qualitative case study design using grounded theory data collection and analysis methods to identify the implications of the shift to country ownership in Ethiopia by the year 2030 (6). The study involved in-depth qualitative interviews with a sample of key informants from the Ethiopian Ministry of Health, Public Health Institutions (PHIs), NTD researchers, and members of partner organizations working in Ethiopia. As this transition has not yet been studied since the publication of the WHO Roadmap, grounded theory was the foundation of the analysis, as it allows for theory generation as a product of qualitative research as opposed to the confirmation of an existing theory.

Sampling Strategy

The sampling strategy for this qualitative case study was to identify key informants involved in the transition planning for NTD campaign interventions into the primary health system, a study being conducted in partnership with the Health Campaign Effectiveness (HCE) Coalition of the Task Force for Global Health (TFGH). This group of key informants is working in Ethiopia's planning and preparation for the shift of NTD programs to the primary health system in the country. The members of this team provided a variety of perspectives from the Ministry of Health, NTD research, implementation, and clinical practice. All five members of the Ethiopian

study team participated in interviews for this case study. All participants were 18 years or older and provided informed verbal consent.

In-Depth key informant interviews

Each in-depth interview with key informants focused on eliciting responses and perspectives on the implications of shifting ownership of NTD interventions to the Ethiopian primary health care system, including the state of the country's health systems currently and barriers to accomplishing the shift to ownership in the next ten years. In line with grounded theory methods, interviews were conducted to elicit each participant's unique perspective and opinion. Rather than using a pre-set interview guide where each interviewee is required to answer specific questions, each interview sought to makes sense of participants' unique perspectives associated with host country ownership. Data collection was iterative, as each interview sought to expand upon the findings of the last. The analysis identified commonalities and disparities among interviewees, which were then added to a list of concepts to cover in each subsequent interview. Interviews were conducted in English over Zoom at a time arranged by the interviewer and interviewee. Interviews ranged from 48 to 60 minutes. All interviews were recorded and translated verbatim before analysis.

Analysis

The goal of the analysis was to form a thorough explanation of the implications of the transition to country ownership for NTD program experts in Ethiopia. We used MAXQDA 2022 (VERBI

Software, 2021) for data analysis. Each transcript was coded using MAXQDA software to identify common patterns and key concepts. Audio recordings were used to confirm the written transcripts where necessary. The analysis was conducted with a constant comparative approach, as themes and patterns were identified as data were added after each subsequent interview (7). The information included in the findings of this case study incorporates all data from the collection and analysis, guided by the thesis support team.

Ethics statement

This case study was reviewed and approved by the Emory University Institutional Review Board (IRB) in Atlanta, Georgia, USA. Verbal informed consent was obtained from all interview participants; all participants were 18 years or older.

Findings

In this section, I will present the findings of the interviews, described above. This section is divided into 2 sub-sections according to the main concepts that arose in the interviews: contextual elements that influence the management of NTDs in Ethiopia, and barriers to shifting country ownership of the NTD program to the Ethiopian Ministry of Health.

Contextual Factors Influencing NTD Program Management in Ethiopia

The in-depth interviews conducted for this study produced a contextual landscape of Ethiopia's current NTD programming. The three contextual factors discussed here currently impact NTD

program management in the country and fall across all three of the barriers to the shift to country ownership of NTD programs identified in the subsequent section. The first is Ethiopia's competing political priorities, the second is a lack of political will in the government for NTD program expansion, and the third is a culture of dependence between Ethiopia and its international partners.

Participants described the Ethiopian government's competing priorities affecting the MoH's ability to invest in nationally-led NTD programming. The current conflict in the country as well as the COVID-19 pandemic that began in 2020 has diverted resources away from investment in the country's NTD program. A representative of the Ministry of Health stated, "*We have various complicating priorities, especially in Ethiopia. There is an ongoing conflict and war and there is also the COVID pandemic and so on... So, that domestic finance is not being released as expected"*. Participants also stated that the conflict was creating access problems within the country's conflict areas and that some MDA campaigns were postponed, stalling progress in NTD control efforts. "*That is a huge challenge and may continue for some years*".

Secondly, the data show that while the Ethiopian government has indicated its willingness to take on NTD program planning and management, there is still a lack of adequate political support for NTDs in the country. NTDs are most prevalent in rural and poor communities and are unique in their effect on the population: stigma and morbidity are more common than mortality and have real effects on people's quality of life and productivity that isn't always reflected in global health goals. A clinician and researcher specializing in skin NTDs gave an

example of a scabies outbreak that had a significant impact on the productivity of schoolchildren: "*on assessment, we found that because of scabies, 5% of the scabies-effected children were out of school. Practically in this 140,000-population town, 1,500 children were out of school because of scabies*". Populations affected by NTDs experience a loss of productivity that is not always immediately evident to Ethiopia's Ministry of Health. Those same communities often are the most affected by geographical access and are more likely to be disconnected from the progress in NTD programming at the national level. "*It's called an NTD because it's not being supported by the Ministry of Health, or there is no big support. And it's NGO driven because there is no- the politician has forgotten about [it]*". These "forgotten" populations are similarly often the last to gain access to a vital component of sustaining NTD control: clean water and sanitation infrastructure.

The last contextual factor is Ethiopia's dependence on external partners for strategic direction, funding, and technical expertise. Several respondents cited a culture of dependency in Ethiopia on outside funding organizations to plan interventions, pay workers, and provide technical expertise. NTD programs are typically implemented in vertical or campaign-based interventions which are organized, funded, and monitored by an external partner. As one participant stated, "*you have these different organizations having a different [monitoring] tool and also using a different schedule interacting with the health extension worker[s] or the local health system to organize the health campaigns. And so, most of the work is now being taken, I will say that especially the planning- is managed by the NGOs*". The vertical structure of these NTD campaign interventions reiterated time and again by all participants in this study, is not ideally

structured for the MoH to take on. The current approach would almost certainly be too resource-intensive and unwieldy for the small NTD branch of the Ethiopian MoH. As one participant who specializes in Trachoma said, "*we have developed this expectant mentality from external partners, usually from the high-income countries. And we don't really look very seriously into available resources within countries.*". A lack of resources in Ethiopia has, according to participants, resulted in dependence on NGOs for management and financial support, while the current verticality of those NGOs' NTD programming cannot be feasibly maintained by the Ethiopian MoH.

Indeed, the recent push for country ownership has been led by and dictated not by countries themselves, but the international community. "*I think the transition bit is being driven by even some donors, and they do say, we're not going to be here … forever. So, you know, the government needs to take over at some point. This transition idea, this mainstreaming idea, also comes from the donors and NGO partners themselves. So, there is this readiness and preparedness and willingness from that side, from the partner side for the government to take over at some point*". This key point highlights the dependence that Ethiopia has on the decision-making power of the global NTD community and puts into focus the challenges that countries like Ethiopia may face when a transition of this magnitude is dictated by external entities.

Barriers to the Shift to Country Ownership of NTD Programs

In the following sub-section of this paper's findings, I will describe three common barriers to the transition to country ownership in Ethiopia according to the study participants. The main

thematic elements that will be discussed in this paper are barriers to NTD funding, workforce capacity, and NTD data management capacity.

Funding

The barrier brought up most frequently by study participants was the issue of funding on the part of the government to invest in NTD programs, as well as limitations in the current external funding structures managed by international donors. The limited ability of the Ethiopian government to prioritize NTD spending in light of the competing national priorities discussed above makes it clear that full financial ownership is still some way off. An important factor stated by the participants is that this transition will take time, and not necessarily include complete financial independence from external donors. A representative in the MoH NTD program emphasizes that "*we aren't saying that [the] government… can do all the interventions based on the local resources. Rather, … the government will take the leadership in planning, coordinating, and designing regional opportunities*", as well as soliciting funding from donors within Ethiopia. Due to the necessity of continued reliance on external funding, there are challenges in the current funding mechanisms that need to be addressed to facilitate the transition to country ownership, including inflexibility or unreliability of funding.

A key characteristic of international funding for NTDs is inflexibility. Participants discussed this lack of flexibility in two ways: the inclusion of restrictions in funds that limit the MoH's ability to make budget decisions based on need, and the overall unreliability of funding over time. Examples given of restrictive funding include requiring the use of a donor's data management

system instead of the established national one, requiring programs to purchase products from the donor country, as a participant expands on: "*always donors come with strings, some attachments as they don't give you unrestricted funding as such, it has its tags that come attached to the funds. They say you have to use it for this purpose strictly. Sometimes they say you can only buy, for example, vehicles from our [country]*". These strings limit government ownership of NTD programming because they are forced to operate under the restrictions of international donors. Lack of flexibility in funding programs also applies to the internal government funding structures. Indeed, even the funding from the Ministry of Health for surveys and monitoring after MDA can be lower than the expense of the actual activities, as a university professor describes in his work with Arba Minch University's MDA monitoring project, "*the finance is not negotiable. If they have that one fixed amount of money then we go. Sometimes we suffered a lot. We took the moral, the initiative, you know, the commitment was there. It doesn't mean that the money allocated by the Ministry is always sufficient. No. We have suffered a lot*".

Additionally, the reliability of funding was a concern among participants. Funding from international donors can be cut off with little to no notice, as happened recently: "*for example, now, DFID, last time made significant budget cuts, and then programs just ended abruptly, so without any advanced notice"*. Events like this one can set back progress on NTDs as programs grind to a halt, with little ability to start them again without the planned funding. As acknowledged by the same participant, unless Ethiopia can establish internal funding sources, the feasibility of country ownership is in question: *"[funding is] very unreliable, and very restricted at the same time. And also, with their own timeline, it has a number of limitations, although still,*

we thank them for what they have done. But the way to go should now just [be] ownership… [if you have] external funding and logistics, then you don't have the right to own that program".

Human Resource Capacity

Ethiopia's health workforce has been described as a national asset to the country's health system, but the shift to country ownership brings with it a paradigm shift in the structure of response to NTDs. Currently, Ethiopia's Health Extension Program organizes thousands of health workers at the community level who then carry out a variety of interventions in their communities. Often in NTD programming, these health extension workers (HEWs) are engaged by international partners who are planning vertical health campaigns that target entire populations with NTD interventions such as MDA. These workers also contribute to other health priorities such as outbreaks and other endemic diseases like Tuberculosis (TB), HIV/AIDs, and others. In contrast, in the primary healthcare system, clinicians and doctors provide individual care for a robust package of everyday maladies. According to the data collected for this study, the Ethiopian health workforce faces two main implications for the impending shift to country ownership: the need for increased capacity for HEWs to remain motivated and equipped to carry out largescale NTD interventions until the prevalence of NTDs falls below the WHO-defined thresholds, and the need for focused NTD training of primary care clinicians to promote awareness and enable them to correctly diagnose and treat NTDs in individuals.

The barrier to Ethiopian HEWs' capacity to carry out NTD programs at the local level was a barrier reported by participants. A researcher and founder of the Collaborative Research and

Training Center for NTDs at Arba Minch University stated, "*we have to be sure that we have enough health workers at the grassroots level. Basically, what we need is to look into activities where you don't need very deep technical [expertise].*". Health workers in Ethiopia can and do participate in the execution of NTD campaigns locally. However, they are often led, trained, organized, compensated, and technically supported by external partners. The capacity at the local government level for these types of activities is quite low: "*The government, do[es] not have that kind of capacity currently … [to] implement at the district level, there is no one at that level where districts can own it and run their program by themselves. For instance, [to] plan MDA by themselves, do the survey, do the census, do the implementation monitoring, there is not that kind of capacity. And then to report it properly and do surveillance and so on.*". A lack of capacity to provide expertise, oversite, and support at the district level in Ethiopia has created a reliance on NGOs to plan, train, and manage the HEWs.

Workforce training in a country as large and populous as Ethiopia does not come without its challenges, namely that a centralized training would be impossible, according to a participant from the MoH. A decentralized approach using universities that are already located where an NTD is endemic, for instance, gives Ethiopia a chance to build local expertise: "*We do have the higher education universities up there. If you go north, east, west, and south, we do have around 56 or 46 higher education institutions. If in the East we'll have one, in the West, we have one North … instead of us traveling up. If they can be engaged, then they can speak their own language because you know, we are very diversified*". Partnerships with universities in all regions of Ethiopia may hold an important key to building the local technical capacity to carry

out NTD interventions. However, universities are "*divorced from [the actual healthcare system*" and there is a gap between local NTD needs and MoH goals and the work that students are carrying out in their research. The reported disconnect between universities and the local and national health priorities is a barrier to building local expertise and capacity in NTD control and elimination in the country.

Motivation in Human resource capacity in Ethiopia is another reported concern from participants in this study. One participant described motivation as a barrier to health workers continuing their work without NGO-level pay, which tends to be much higher than what the MoH can offer. "*So that requires not only competence or training for their skill, but also their willingness and motivation, to be able to serve without having [an]incentive… but some people might think, 'no, this is extra work and it has been delivered with incentive before. Now you are asking me to do this without incentive.' That is the culture that I believe would be a challenge to change*". The possibility that NGO payment to HEWs will cease as NTD interventions shift to a country-owned programming model is a significant anticipated barrier. Payments from NGOs to HEWs also carry another implication: human resources go where compensation is higher, effectively leeching away talent from the national health system. As one participant elaborates, "*when you think about human resource capacity building, policy on the implementing partners, they employ the best that they can get in that country because they pay better.*". Dependence on NGO payments to health workers is an anticipated barrier for Ethiopia to overcome in the shift to NTD program ownership.

The second barrier to the Ethiopian health workforce comes from the primary health system. Primary care clinicians' capacity to recognize, diagnose, and treat NTDs is weak. Participants indicated that the current state of NTD awareness is not yet strong enough to support the shift from community-based NTD interventions to the primary health system that treats individuals. Our skin NTD expert provided an example of doctors in Ethiopia confusing podoconiosis, a skin NTD, with another disease. While he has tried to share his knowledge of the skin NTDs with primary clinicians by offering training opportunities and conference presentations, he emphasizes the need for national, MoH-supported training for health workers on diagnosis and available treatments for NTDs: "*Ten years back there was a knowledge assessment on health workers. Only 3% of health workers knew about [podoconiosis] and how to manage [it]. The 97%? No. This includes mid-level and also specialized physicians… [The] same goes for I think STH and strongyloidiasis. We have, for example, in the place I live, the prevalence of strongyloidiasis is very high. No physician knows about this data"*. While NTD control efforts have been implemented for the last ten years in campaigns outside of the primary health system, these diseases are often not recognized by physicians or are misdiagnosed. Patients can be turned away because there is a lack of knowledge about the treatment options for certain NTDs and still more resort to dangerous self-treatment: "*There were people who died actually because they [tried] to treat themselves [with] malachite*". Ethiopian primary health workers need improved education and training on NTDs. The national government plans to rectify this issue through a large investment in training on a "*massive scale*" and aims to train clinicians at the regional or district levels in NTD management.

Data Management Capacity and Ownership

According to the participants in this study, Ethiopia's current data management capacity is a barrier to NTD program ownership. Data are essential for the evaluation and monitoring of diseases to measure progress toward national and WHO-defined goals. This idea can be broken into three parts: The capacity to store and manage national NTD data using a central health information database, the local technological capacity to report into a national NTD database and the country's ownership of all NTD data to inform decisions and prioritization in investment by the MoH.

Ethiopia does not currently have a comprehensive centralized NTD database. This prevents the MoH from using such a tool to monitor NTD data and be responsive to issues of morbidity and mortality that stem from endemic NTDs. To achieve political will to solve outbreaks and improve morbidity, the government needs to collect, own, and have ready access to disease data. According to one participant, "*the Health Information Management System is not comprehensive, because of the budget. NGO programs create their own reporting system or data collection system… When they collect that data, it doesn't get fed back into the National Information System*". Data on these diseases is an advocacy tool for NTDs, as these often carry a stigma and need increased awareness in the MoH to encourage political action to eradicate or prevent them. With the current system, there is no clear way that NTD data can be searched, analyzed, and acted upon.

According to study participants, the second issue of data management capacity within Ethiopia's health system is a lack of local capacity to incorporate reporting of data into a national electronic database. Local health workers and district health centers often use paper forms for reporting, making it difficult to centrally collect and use data for decision-making. Workers at the local level do not always have access to reporting tools, the internet, or have the capacity to report both to an NGO and the MoH. As one participant elaborates, there is a need for local governments to develop the technical capacity to utilize electronic reporting mechanisms which would deliver essential data to a unified national NTD database. "*There should be a better-equipped people out there at [the] district level who can… report it properly[and] write it properly… These are small things, [but] there is not really capacity to implement this*".

In addition to a lack of capacity for local reporting and central data management in the country, data ownership is also a key barrier to the transition to country ownership. Much NTD data is not owned or maintained by the government, but instead by the organizational partners whose donations fund the data collection or activity. NTD data ownership, much like the intervention programs themselves, is piecemeal and managed from NGO to NGO. This is a major barrier because the Ethiopian MoH either does not have access to the data at all, or it is given to them secondarily: "*When I say the data, the health system doesn't have it. [Or] they have it but secondarily, because usually the monitoring data [or] primary mapping data is collected by and handled by the NGOs, and they have their own reporting system and so on... And so primarily at the annual review meeting of the NTDs in the country, each NGO presents its own NTD. Then the Ministry of Health gets the data from them*". According to study participants, NGOs usually

want the data and reporting from the initiatives it supports in their style and format, creating the necessity for the health workers to format data and report using those external criteria. To maintain this data for use by the government, it needs to be formatted and routed differently, effectively doubling the resources and time it takes to properly report to both the partner and the MoH. Since awareness and decision-making flow from data access, the Ethiopian MoH is currently limited in accessing and making decisions using this NTD data.

Further, data on NTDs are essential for building political will for increased investment in interventions. An informative example from a participant on a scabies outbreak helps illustrate the importance of government ownership of NTD data: "*There was a scabies outbreak in the country and scabies is not owned by any NGO because it's a new NTD. But after knowing this, it was surprising to see that the health bureau ha[d] full responsibility, and it was difficult to secure ivermectin for the campaign of the drug... And they took some responsibility to shift some drug from [another] program- like 30 million tablets of ivermectin... And called each local district health officer for training, and deployed around 15,000 people to manage this case outbreak… There was ownership... And it's [because] they can see that this is the challenge of the community. When you think of the other NTD programs, they have difficulty running it sometimes because… Without the data - if I go to the health bureau asking them for data now for STH, they don't have it. Because it was one of the NGOs. If I go there ask for the data for Onchocerciasis, usually it is not available*". The availability of NTD data not only to the government but also to local health researchers, educational institutions, and local governments

facilitates local awareness, response, and analysis of NTD data, which is an essential component of country ownership according to participants.

Discussion

The qualitative data analyzed for this project builds a useful contextual picture of what it will take for the NTD community, including those organizations and NGOs that work globally, to work together to shift to country-owned NTD programming as recommended in the WHO 2030 NTD roadmap. The roadmap acknowledges that the newly published NTD goals are ambitious and will require significant work on the part of countries and their partners in the fight to eliminate NTDs. Country ownership requires a strong health system to take on the integration of NTD programming. As the data from this study suggests, there are significant barriers to building a strong health system that can integrate primary care for NTDs. While these barriers to funding, human resource capacity, and data ownership remain, it will take significant effort on the part of the country to shift away from the current donor-led approach to NTD programs. A cultural shift is also required from Ethiopia's NTD partners, who will need to work closely with the country to shift decision-making power and strategic vision to the country, acting as technical advisors and facilitators of capacity building. Employing existing tools in re-evaluating NGOs' strategic approaches to NTDs may yield a useful framework for both country and partner.

The Research Fairness Initiative (RFI) was developed by the Council of Health Research for Development (COHRED). The core principle of fairness in partnerships between low- and

middle-income (LMIC) countries and high-income countries (HIC) informed the RFI reporting tool to help organizations evaluate the efficiency and effectiveness of their partnerships. The RFI seeks to develop technical and systems capacity through examining partner engagement in planning, data sharing and ownership, and financing practices. Through its use, organizational partners working with countries like Ethiopia can examine their role in acknowledging the unequal capacities between partners and minimizing possible local negative impacts (8). Using a framework like the RFI can aid HIC organizations in improving their internal structures and governance by ensuring their work contributes to strengthening the capacity of their country partners. The RFI guide and evaluation frameworks touch on all three of the barriers to country ownership of NTD programming: funding, human resource capacity, and data ownership.

Funding

The issue of funding weaves its way through every aspect of country ownership. The government of Ethiopia still needs external financial resources to succeed in eliminating NTDs, but it needs to plan, coordinate, and build NTD expertise at all levels to achieve NTD program ownership. To address barriers of inflexibility and reliability in funding that were identified in this study, the decision-making power on how that funding is used must shift to the country itself. For that to be possible, external partners should adjust their approach to funding partnerships with countries. To address a lack of financial flexibility, for instance, funders should work with their country partners to identify needed flexibilities that allow the country to build capacity to ensure that funding is contributing to the long-term strength of Ethiopia's health system. This may include increasing support for local access to technology, building capacity for

a national health database, and training more health workers locally in the planning and technical implementation of NTD intervention work. Funders and implementing organizations should employ tools like the RFI to ensure their country partnerships are prioritizing Ethiopia's health system capacity needs.

NTD prevalence is affected by environmental factors such as clean water, shoe wearing, and sanitation infrastructure as well as workforce capacity and health system strength. Study participants linked flexibility in funding to the Ethiopian MoH's ability to invest in the structural changes that are needed to sustain the progress of MDA. A researcher in Ethiopia specializing in Trachoma, stated, "*There is huge appetite I believe, particularly if somebody can invest [in] training and building capacity and creating that kind of system and infrastructure in addition to in parallel to you know, [along with] donating drugs and doing surgery*". It is becoming increasingly important for international funding partners to build partnerships that are responsive to the long-term strategic establishment of country ownership and be flexible enough to support them.

<u>Human Resource Capacity</u>

To address workforce capacity and motivation, a renewed focus on technical capacity at the local level will be an important investment for the country. Strong local health systems are essential to reaching the under-served populations that are most affected by NTDs. Capitalizing on Ethiopia's university system and building NTD partnerships with them may be a key strategy to developing this local expertise while also addressing the country's large geography and diverse

cultures. Local universities and research institutions focusing on the NTDs that are endemic in their region will help to focus and build local capacity on NTD program planning, implementation, and evaluation. Building a partnership network across the country's universities and public health institutions would also lower the cost of traveling workers outside of their region, as a participant pointed out was a financial barrier for his NTD program at Arba Minch, which is currently the only university in the country contributing to national NTD work by monitoring MDAs.

Addressing health worker motivation in light of the current system, in which NGOs have provided higher pay than is available from the MoH, will also be essential to increase country ownership as it will facilitate Ethiopia's ability to mobilize and rely upon its local health workforce. A robust system of trained local health workers is essential to contributing to the kind of support structures and supervision that is essential for workers' motivation. Because there is an expectation that financial motivation from donors will end, Ethiopia must address health worker attrition by integrating other forms of support into the health workforce. According to a study of attrition among health workers trained to perform surgery on Trachoma patients, a network of support and supervision with a skills audit can both improve the NTD care and keep providers feeling supported and motivated (9).

Further implications of the workforce capacity in Ethiopia include a lack of awareness and knowledge of NTD diagnosis and treatment among primary care providers. Large-scale national training for clinicians in the primary healthcare system is needed to ensure familiarity with the

nine NTDs prioritized by the Ethiopia MoH to address this knowledge gap. Because training will be resource-intensive, a decentralized approach to training can be used to ensure that regional expertise is improved throughout the entire country. Ethiopia will need to seek out funding and donors that are willing to invest in the primary care system and can work with them to continue strengthening the health system and funding NTD interventions.

Data Management Capacity and Ownership

The final implication of data management capacity and ownership can be similarly addressed by Ethiopia and its partners using the strategies and recommendations discussed above. Directing all funding and implementation partners toward the use and improvement of the national health information system is the only way that the country's capacity to make informed decisions on NTD interventions can be done. Funders must re-evaluate their internal expectation for data ownership and favor of national databases, and should align wherever possible with national reporting formats and structures that will promote the ease of reporting to international bodies like the WHO. Data ownership is a key component of country ownership. External partners can utilize the RFI framework, which has a section dedicated to data ownership, storage, access, and use, to evaluate internal practices to ensure agreement and fair practices before any action or implementation occurs. To promote open dialogue and ownership of data, publications, and analysis done with national NTD data, external partners should defer their ownership, offering assistance but leaving the ownership of national NTD data to the country.

The importance of local administrators to communicate, be trained, and access information electronically is a factor of data management capabilities that needs national investment to promote a centralized information system that can be used to mobilize funding and health workers.

Promoting ownership of the country's data and workforce may remain a challenge, but a focus on acknowledging the barriers that partnerships may contribute to, like dependence on funding and technical expertise, is key to remaining valuable partners who contribute to the success of Ethiopia's health system strength.

Limitations

Limitations to this study include time and access to a wider variety of country participants. Conducting case studies and in-depth interviews with participants from multiple countries may have elucidated a broader, more robust picture of the shift toward country ownership in countries with different health system structures and contexts. Additionally, all in-depth interviews were conducted in English to accommodate the interviewer. Offering interviews in native languages may have contributed to more detailed or robust answers in the interviews and therefore more details to analyze.

Conclusion

According to data from this study, the shift to country ownership in the WHO 2030 NTD roadmap is being advocated for by global organizations and donors. While the Ethiopian MoH is

working toward this goal and is beginning to evaluate its health system to identify gaps, international partners retain a responsibility to facilitate and aid capacity building to build strong health systems in partner countries. This may require changing organizational approaches to align with a country's strategic plan for the transition and its NTD goals. Employing tools that evaluate partnerships through the lens of fairness in global health partnerships such as the RFI evaluation tool may offer a useful approach for partners to evaluate their work with countries like Ethiopia. While all the participants in the study acknowledged that this goal will take time to realize, they also remain committed to reaching ownership by contributing to national action plans on resource mobilization and NTD integration.

Through continued commitment and partnership, Ethiopia and its NTD partners should continue to work together to shift decision-making power and flexibility toward the Ethiopian MoH. The shift to primary healthcare provision of NTD services will require a shift in culture and practice from both the country and its external partners. Calling upon resources such as the RFI can aid international funders and implementation partners to evaluate their role and approach to NTD intervention, and ensure that capacity building within the country is prioritized to maximize the impact of the significant progress toward NTD control and elimination and continue to build on that progress.

Through the qualitative process, this author gained insight from NTD experts within Ethiopia to begin mapping the country's specific context and the barriers to transition to country-owned NTD programming. This approach yielded a deeper understanding of the needs of a country who

has made great progress but will still need the partnership and investment from external partners for some time in order to reach NTD control and elimination goals. Tools for understanding roles and fairness within partnerships are instrumental in this transition, as is a renewed emphasis on country-centered decision-making.

Data ownership among countries is an essential component of program ownership, and allows for informed action from the government. Data are a valuable advocacy tool to boost political buy-in and inform the government on the ways that NTDs are affecting the Ethiopian population. These insights from NTD experts in Ethiopia give us an opportunity to meet the transition to country ownership, a move that has implications globally, to evaluate partner approaches and help partner countries to transition into the next ten years of NTD programming.

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