



Rethinking Malaria in the Context to COVID-19

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Note: This preprint is part of the “Rethinking Malaria in the Context of COVID-19” series. All of the manuscripts produced in this effort will be submitted for peer-review and published as a compendium. This preprint is being made available to enable a broader discussion around key challenges and solutions.

The “Rethinking Malaria in the Context of COVID–19” global engagement was constituted as a consultative process to ‘take stock’ and push beyond conventional thinking to question fundamental assumptions and approaches, with a focus on bold new ideas to achieve real-world progress. The process managed by three governance bodies comprising a Steering Committee, Working Group Co-Chairs and contributing authors, and an External Advisory Committee. For a listing of the "Rethinking Malaria" Working Group Co-Chairs and contributing authors and External Advisory Committee members, see Text A1.

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Supporting Information:

Text A1: "Rethinking Malaria in the Context of COVID-19" website.

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Abstract

Rethinking the governance of malaria requires consideration of the core components of governance, including who has power, who makes decisions, how players make their voice heard, and how players are held accountable. This paper examines the governance of malaria at the community, the nation-state, and global levels. The paper summarizes the findings of five innovative research papers on malaria governance related to: (1) malaria in the governance of district health systems, (2) governance lessons for malaria learned from other disease control programs, (3) governance issues related to malaria financing, (4) efforts at decolonizing malaria governance, and (5) strategic communications for the governance of malaria programs.

The authors of these five research papers related to malaria governance met weekly for six months to discuss and debate issues specific to each paper and also identify common themes. These common themes became the basis for “five proposed changes” in malaria governance, which are presented in this paper: (1) change in the locus of malaria decision-making, (2) change in the package of malaria interventions, (3) change in the structure of accountability related to malaria progress, (4) change in the availability of public data on malaria, and (5) change in communication about malaria. These changes hold the potential for a fundamental restructuring of malaria governance, and for revitalizing progress in moving towards the elimination of malaria in endemic countries.

The paper concludes with proposals for specific actions related to each of the five changes in malaria governance. Adopting and implementing these specific actions may be challenging, because they require changing the distribution of power among institutions and individuals at the global, national, and community levels.

Introduction

Rethinking the governance of malaria control requires a consideration of two key questions: What does governance mean? Why does governance matter in the fight against malaria?

Governance is a complex concept with many different definitions. One simple definition, from the Institute on Governance in Canada, is “how society or groups within it, organize to make decisions” [1]. The Institute additionally explains that the definition includes the importance of authority, decision-making and accountability—who has power, who makes decisions, how players make their voice heard, and how players are held accountable. These core considerations of power, decision-making, transparency, and accountability shape our approach to rethinking governance related to malaria.

In this analysis, we consider these core aspects of governance at three different levels: at the *community*, *nation-state*, and *global* levels. At each level, we consider: Who makes decisions that shape a nation's malaria programs goals and strategies? Where do financial resources to support these programs come from? Who is held accountable for pursuing the stated strategies and achieving goals? Who is documenting, measuring and assessing whether the goals are met? And who receives information (and in what forms) about progress and setbacks in malaria control and elimination? Too often, the answers to these questions have been just “the malaria community.” However, the “malaria community” typically focuses on scientific, operational, and behavioral questions. This focus leaves other stakeholders out of malaria-related discussions and decisions that affect them (for example, politicians, civil servants, farmers, traditional chiefs and local leaders, parents and children, and community members). In our rethinking of malaria governance, we have sought to include attention to these other stakeholders.

We believe that malaria governance matters, from an ethical perspective, for both *instrumental* reasons (because of the consequences for performance) and *intrinsic* reasons (as a social goal in itself). The instrumental reasons relate to ways in which better governance potentially improves the control of malaria in endemic countries and thereby improves health indicators (as objective measures). In short, better governance for malaria moves countries towards malaria elimination. Empirical evidence for this relationship, however, remains weak. One analysis of eight governance indicators did not find a significant relationship between better governance and improved malaria control [2].

The intrinsic reasons state that better governance and better ways of making social decisions about malaria control are important to pursue for themselves, as part of what constitutes a good society, even

if the actions taken do not improve performance (that is, reduce the health burden of malaria). In short, better governance for malaria moves countries towards better societies. The question of what constitutes a “better society” represents a value-based judgment and raises fundamental issues of ethics [3], including who decides on social values and how.

Governance issues represent a critical first step for the “Rethinking Malaria In the Context of COVID–19” project. In many ways, considering how to improve governance sets the stage and the context for the other two Working Groups and their analyses of integrated delivery of malaria control and training capacity for malaria workers. In addition, the global COVID-19 pandemic has raised numerous questions of governance that have helped to broaden this “Rethinking Malaria” project. Global experiences with the pandemic remind us that the governance aspects of top-down approaches to disease control have made huge differences in the effectiveness of national efforts to control the pandemic. Further, COVID-19 has shown that top-down approaches to disease control will not work without equal efforts from bottom-up approaches. We suggest that the existing approaches to malaria control need to be turned on their head, using a new paradigm that starts with communities and keeps them in the lead.

With this proposition in mind, we engaged a group of “rethinkers” to critically examine what constitutes “business as usual” for malaria governance and propose new ways of thinking and acting for the global malaria community (Table 1).

Table 1. Five Working Papers on Rethinking Malaria Governance

1. “Malaria in the Governance of District Health Systems: Engaging Communities and Local Authorities” <i>by Nii Ayite Coleman</i>
2. “Rethinking Malaria: Governance Lessons from Other Disease Programs” <i>by Kelechi Ohiri, Ifeyinwa Aniebo, and Olufunmilayo Akinlade</i>
3. “Malaria Financing” <i>by Ravi Rannan-Eliya</i>
4. “Decolonizing Malaria Governance” <i>by Jesse B. Bump and Ifeyinwa Aniebo</i>
5. “Rethinking Communications for Governance of Malaria Programs” <i>by Jimmy Opigo and Anya L. Guyer</i>

These five working papers provide ideas from different perspectives about how to transform and improve malaria governance. Members of the Working Group on Malaria Governance met weekly for six months (from late 2020 until mid-year 2021) to discuss issues related to the working papers and identify common themes that became the basis for the “five proposed changes” (presented in Table 2). The Working Group also met with key stakeholders in malaria and members of the Advisory Committee, who provided comments and suggestions that were incorporated into the papers.

Table 2. Five Proposed Changes in Malaria Governance

1. Change in the locus of decision-making
2. Change in the package of interventions
3. Change in the structure of accountability
4. Change in the availability of public data on malaria
5. Change in communication about malaria

- (1) Change in the locus of decision-making: To shift from global and external decision-makers, to the citizens of malaria-endemic countries, with a focus on the leaders of the malaria control program and the local communities affected. Each malaria-endemic country should consider the creation of a national malaria advisor to the president, to raise the political profile of malaria and provide malaria information directly to the highest political leaders. The ongoing discussion of “decolonizing” global health has important implications for how global health institutions operate, but also for how decisions are made within countries for malaria (and other health issues). Effectively engaging the local knowledge of communities and the collaboration of traditional chiefs and local leaders is a major challenge for all malaria-endemic countries. The shift in decision-making to communities should be supported by funding that flows directly to communities, for local decisions on how to eliminate malaria as a social problem. Communities are best placed to identify the local malaria barriers, and to participate in the solutions. But to become part of the solutions, communities need enhanced financing, authority, and capacity as well as decision-making power.
- (2) Change in the package of interventions: To shift to intervention packages decided in collaboration with local communities so that strategies fit with malaria epidemiology and local practices and values; this could mean, for example, to shift from universal distribution of insecticide-treated nets to targeted distribution. The package of interventions should seek to address the environmental and social determinant aspects of malaria. This change involves a vision of malaria as a social problem more than a medical problem, and would require more multisectoral approaches. Changes in the package of interventions will be necessarily shaped and constrained by the availability of financial resources, and the challenges of raising increased donor resources for malaria in the post-COVID global environment.
- (3) Change in the structure of accountability: To shift from a focus on accountability to external organizations (through donors), to a focus on accountability within endemic-countries, both at the national and the local levels. This change requires the engagement of national, state, and district assemblies, as well as traditional chiefs and local leaders, to hold the malaria control program responsible for delivering results. The shift to a focus on local accountability could also include efforts to raise local resources for malaria and to count ongoing local efforts as part of the resource mobilization for malaria. The national focus requires more effective structures and processes to hold governments and elected leaders accountable for addressing the barriers people face when seeking quality care for malaria. This shift could strengthen mechanisms of accountability between government, health-care providers, and users of services.
- (4) Change in the availability of public data on malaria: To shift from delayed, incomplete, and low visibility data about malaria deaths and cases, to publicly visible, timely, and easy to understand data on the health consequences of malaria. Public data on malaria deaths will help de-normalize social acceptability of the health consequences of malaria. Greater public availability of data on malaria can contribute to the creation of a new structure of local accountability for malaria, and to use of effective strategic communication for malaria stakeholders.
- (5) Change in communication about malaria: To shift from a focus on behavior change communication that views beneficiaries as malaria control implementers, to a focus on strategic policy communication [4] that engages key stakeholders in the governance changes presented in the previous four categories. Strategic communications is required to design and implement the fundamental changes in malaria governance required to move towards malaria elimination.

Our intention in this Working Group was not to produce a consensus plan for transforming malaria governance. Instead, it was to identify areas where changes in malaria governance could have significant impacts on the success of malaria control, in order to improve health outcomes and build stronger societies. We offer these proposed five changes in malaria governance for discussion by an expanded “malaria community.” Building consensus around these five changes and implementing them will not be easy. The changes involve significant changes in power and in how malaria control happens. But we believe that a global debate on these five changes is critical to *Rethinking Malaria* and to putting malaria back on track toward elimination.

Below we present a summary of each working paper, followed by a discussion of the challenges of implementing these changes in malaria governance.

Rethinking District Governance and Community Engagement (Working Paper #1)

The first theme is the importance of rethinking community engagement in malaria control. While calls for community engagement appear within the literature on malaria, they rarely take into account the complex landscape of stakeholders and institutions that exist within malaria endemic community. Nii Coleman examines these issues for Ghana, based on his 34 years of experience working in that country’s Ministry of Health, within district hospitals, as District Medical Officer, as Regional Director of Health Services, and in leadership roles in the national office [5]. He reports that stakeholder engagement is typically viewed as an ad hoc mechanism to implement specific malaria program objectives, such as the distribution of insecticide-treated nets. Those stakeholders include: households, communities and traditional chiefs and local leaders; healthcare service providers; the district health authorities; the District Assembly; and the Social Services Sub-Committee of the District Assembly. He assesses the reasons for ineffective engagement of these groups and institutions in malaria control in Ghana. The fundamental problem, according to Coleman, is that malaria is viewed as a medical problem requiring medical interventions, rather than a social problem requiring social interventions. He writes:

The goal of elimination and eventual eradication of malaria without effective control of mosquito breeding and public health regulation is fundamentally flawed. Elimination and eventual eradication of malaria would require a paradigm shift from a medical perspective to a social determinant approach. A social determinant approach to malaria would engender a sustained and systematic engagement with the whole spectrum of stakeholders in the communities.

Rethinking community engagement with malaria, to move towards elimination, thus requires rethinking community health governance, in Ghana and elsewhere. This requires stepping out of the malaria silo and into the many relationships in communities, especially between traditional and modern political authorities. Coleman recommends three specific strategies to create effective deliberation and action on malaria within communities: (1) the creation of alliances to govern community health involving many different stakeholders; (2) the support and development of existing local institutions that are supposed to produce multi-sectoral action (such as Ghana’s Social Services Sub-Committees in the District Assembly); (3) promote a unified District-level health leadership that can design malaria implementation strategies that engage different stakeholders, including healthcare providers in both public and private sectors.

The specifics of community engagement for malaria will vary by country, depending on local history, stakeholders, and institutions. But each malaria-endemic country will need to find ways to make “malaria” owned by communities, and viewed by local leaders as a social problem and an indicator of

social underdevelopment. Malaria deaths have to be de-normalized within communities, with demands for accountability to political and health authorities. This governance transformation will require discussions within villages and communities and political institutions, and a rethinking of what malaria means for communities. Until that happens, significant progress is unlikely.

Rethinking Lessons from Other Disease Programs (Working Paper #2)

What governance lessons can the malaria community learn from other successful disease control programs, especially from successes in eliminating or eradicating an infectious disease? For example, what can be learned from the governance of polio or smallpox, and how can those lessons be applied to malaria efforts? This apparently simple question is actually quite complex. There are significant biological differences in parasites and transmission cycles across diseases that make it difficult to generalize to malaria. In addition, the successes occurred in different countries and different historical moments, again making it difficult to apply “lessons” to malaria today. Kelechi Ohiri and his colleagues in Nigeria (Ifeyinwa Aniebo and Olufunmilayo Akinlade) agreed to take on these challenging questions, and they propose a series of lessons and insights for the malaria community to consider [6].

Ohiri and colleagues examined the literature on how disease control was achieved (or sought) for four other conditions: (1) smallpox, worldwide; (2) polio, in Latin America and the Caribbean; (3) onchocerciasis, in Sub-Saharan Africa; and (4) the ongoing COVID-19 pandemic, globally. Their analysis of the published literature on these disease control programs, along with interviews with people who have been involved in these efforts (including malaria), led them to eight different governance themes for successful disease control. For each theme, they discuss the implications for malaria. Here are the eight themes they identify:

1. International support and coordination: One of the main features of the successful programs was a high level of international collaboration, advocacy and support that galvanized the world to prioritize and tackle these issues.
2. Financing: Closely linked to global advocacy is international and domestic resource mobilization to support the global efforts at disease control and elimination.
3. Country ownership: Independent actions by countries to test many approaches simultaneously across different sociocultural and epidemiological contexts was an important success factor for other disease control programs.
4. National program structure and management: Successful disease programs have emphasized the importance of strong management, integration in the national health system, and buy-in by top political decision makers.
5. Community engagement: Community engagement and participation was critical for successful global disease programs. Top-down approaches alone have limited effectiveness.
6. Data collection and use: Disease eradication programs depend on real-time, high-quality data for surveillance and monitoring, and also to reprioritize and align program strategy, and improve the efficient targeting and deployment of interventions.
7. Multisectoral collaboration: Multisectoral collaboration is critical to control the spread of infectious diseases (such as COVID-19) as well as mitigation of its impact on populations.
8. Technology and innovation: Technology innovation played a crucial role in the success of some global disease control programs by transforming the options available for interventions and thereby accelerating the pace of disease eradication.

These eight themes may not seem new or innovative at first look, but the implications for “business-as-usual” malaria control are significant and striking. The details presented in the paper’s Table 1 provides examples for each disease program along these eight themes, and the implications for malaria.

This paper concludes that there is not a single governance package that can be applied in a cookie-cutter fashion for all disease control programs, or even for all malaria programs. But the examination of other disease control program does raise many strategic questions about how malaria governance can be improved in the community, at the nation-state, and in global institutions. As Ohiri and colleagues write, experiences with other disease control programs offer many potential lessons, which could suggest “additional ideas and inspiration for a more robust push towards malaria eradication.”

Rethinking Malaria Financing (Working Paper #3)

The ongoing global COVID-19 pandemic makes it difficult to imagine a significant increase in donor funding for malaria. Indeed, every global health program is seeking to augment its funding, creating strong competition from other health priorities (tuberculosis, HIV/AIDS, chronic diseases, neglected tropical diseases, and on). The economic chaos caused by the pandemic continues to create political disruption and confusion, not only in European donor nations but also in major low- and middle-income countries (such as India, Brazil, and Mexico). In his paper on malaria financing, Ravindra Rannan-Eliya concludes that the current environment makes an increase unlikely for global contributions in the fight against malaria [7].

Without new global financing, what can be done? According to Rannan-Eliya, the malaria community will need to find ways to do better with the current external financing package (assuming that existing international financing continues). This scenario would require finding ways to increase the technical efficiency of expenditures and strategies for malaria control, while considering the distributional consequences for equity. Some efficiency gains could also be achieved by reallocation of malaria activities, for example, by not providing insecticide-treated nets to urban residents who have a low probability of exposure to mosquitoes, and by focusing on rural residents who have a greater likelihood of infection. This reallocation and targeting of resources to more vulnerable groups could increase equity, but it could also encounter political obstacles from more powerful urban-based interests within countries and pressures from malaria donor agencies that focus on commodity distribution. Rannan-Eliya notes the importance of international financing, but also cautions that “excessive reliance on international funding could distort the accountability away from the people who suffer malaria to people in faraway lands who do not, with potentially negative impacts on malaria control.”

This assessment of malaria financing emphasizes the significant under-counting of ongoing domestic financing for malaria in endemic countries. According to Rannan-Eliya, domestic financing for malaria “has always been far greater” than international financing. He explains,

The financial contribution of developing countries is systematically under-counted because most efforts to track malaria financing only consider programmatic spending by malaria control programs, and do not consider and count the much larger spending by general health services in the routine treatment of malaria and suspected malaria cases, which also includes private expenditures by households.

The challenge of malaria financing is to learn how “to do more with what we have or even more with less.” Rannan-Eliya proposes to learn from national cases that have successfully eliminated malaria, especially Sri Lanka, China, and El Salvador. His analysis of these cases provides insights into governance factors that created success in the fight against malaria with existing tools and resources. These

approaches, he argues, could be applicable to the “high burden–high impact countries” for malaria. In particular, he highlights the critical role of effective treatment of malaria cases in controlling transmission. He concludes that “a key challenge in eliminating malaria in many high burden countries is the weakness and low coverage of the overall health system and local health services.” Improving the health system in malaria endemic countries, in turn, depends on restructuring accountability, addressing public sector performance, and making these activities both politically feasible and politically attractive.

Rethinking Communications for Malaria (Working Paper #4)

One key component of governance failure for malaria is communications. Typically, the malaria community views “communications” as focused on “behavior change communication” (BCC) and “information, education, and communication” (IEC)—efforts to get beneficiaries to follow certain instructions, for insecticide-treated nets, for treatment, for mosquitoes. This narrow view of communications requires fundamental restructuring. Jimmy Opigo and Anya L. Guyer argue, in their paper, that communications is “the key to building a communal sense of purpose in a complex and dynamic world”—and that activity has been missing from most national malaria control programs [8].

Opigo and Guyer explain that communications plays a foundational in every aspect of a national malaria control program: “understanding how malaria affects people’s lives, promoting supportive policy, building teams, seeking money and other resources, and influencing stakeholders’ opinions in support of the program’s strategies for malaria control.” Effective communications is needed to shape decisions on malaria policy as well as promote implementation of what happens in practice. Communications is the “management glue that holds the malaria program and team together.”

This working paper explains five key components of policy communications for malaria:

1. Audiences: Who are the key stakeholders, and where are they located?
2. Message: What does the program want its audiences and stakeholders to learn, understand, and do?
3. Medium: How can the program deliver these messages to audiences?
4. Messenger: Who can deliver the messages to the different audiences?
5. Timing: When is the audience most open to receiving these messages?

The authors conclude that strategic communications [4] is an essential governance skill for malaria program directors. This skill requires development to resume progress against malaria in endemic countries. Malaria program managers need training, practice, and support in how to communicate not only with beneficiaries, malaria workers, and government agencies, but also with politicians and journalists. The new communications for malaria needs to go beyond one-way announcements from the malaria control program and find creative channels for two-way communications and listening to collect feedback in a structured and useful manner. In short, strategic communications is a core element of rethinking governance for malaria.

Decolonizing Malaria Governance (Working Paper #5)

In recent years, commentators around the world have called for a “decolonization” of global health. Two proponents for decolonization have written, “What we know as global health today emerged as an enabler of European colonization of much of the rest of the world... Global health remains much too

centred on individuals and agencies in high-income countries” [9]. What do these calls to “remove all forms of supremacy” from global health practice mean for the path to malaria elimination?

Jesse B. Bump and Ifeyinwa Aniebo examine the historical roots of malaria as a disease, malaria as a focus of study, and malaria control as an academic activity in the processes of colonialization. They use this historical perspective to propose implications for malaria governance today [10]. By taking a “deep dive” into the history of colonialization, they recount “how malaria became a colonial problem, how malaria control rose to prominence as a colonial activity, and how interest in malaria was harnessed to create the first schools of tropical medicine and the academic specialization now known as global health.” They conclude that malaria “as we know it today. . . was produced by colonialism, and the study of malaria was intended to protect colonial interests, not to protect indigenous people or defeat the disease more broadly.”

The authors show that colonialism was “central to the creation of both malaria and its related academic enterprise” and that decolonizing requires “rethinking every underlying principle and relationship.” This historical analysis leads to two main points. First is the importance of shifting the locus of decision-making about malaria control strategies from external agencies to the endemic nation-states themselves. This shift represents more than “country ownership” and is closer to country control and national decisions. It implies significantly more power and decision space for national program managers for malaria. Indeed, they would require a new name, since they would become more than “program managers.” Second is the importance of expanding the toolbox of malaria interventions, which are derived from two of the core colonial malaria interventions, pharmaceutical treatment and insecticide-treated nets, and to include one of the colonial interventions that got lost in actual decolonization: environmental management to control mosquito breeding. Ironically, decolonizing malaria may involve returning to some colonial interventions that got lost over time.

Efforts to decolonize malaria also confront the real-world challenges of the power dynamics of overseas development assistance. The objective of greater accountability within “donor” countries for overseas development assistance can conflict with the objective of giving greater autonomy to “recipient” countries about how funds are spent on malaria. Similarly, calls to decolonize malaria within endemic countries can run up against patterns of allocation that favor national decisions over community decisions, or certain regions over others. Bump and Aniebo conclude, “Fundamentally, decolonization means rethinking and restructuring the governance relationships that shape decisions about malaria.”

Conclusion

A central challenge for each of the five proposed changes in malaria governance is implementation, actually making things happen.⁴ Many ideas about changing governance have been discussed before in the malaria community, without resulting in action, much less transformation of governance practices. How do we move from “What to do?” to “How do we do it?” in transforming malaria governance?

One problem is that the categories of “What to do?” and “How to do it?” may not be entirely distinct. Some proposals of what-to-do may provide guidance on the how-to-do-it. In addition, deciding on the details of how to achieve change often requires local knowledge, local adaptation, and local strategies—details that are produced through political analysis for implementation [11]. Thus, one way to move forward is to begin with the five strategic changes to malaria governance and consider specific actions that could advance each change.

Table 3 proposes specific actions (based on the narrative above and additional discussion) for the five changes in malaria governance. These actions require additional analysis to make them operational. It is worth noting, moreover, that the proposed actions may not always deliver better governance. Positive results may depend on conditions not identified, including, for example, who the malaria leader is, the state of the national economy, and how malaria data are presented to political leaders.

Nonetheless, the proposed actions in Table 3 can be developed into operational plans and targets for improved malaria governance. The targets can then serve as milestones for moving forward on the road to better governance for malaria in particular contexts. Adopting and implementing specific actions will be challenging because they require changing the distribution of power among institutions and individuals at the global, national, and community levels. It will be important to create a policy dialogue with key stakeholders in ways that bring them on board. This is why applied political analysis is critical to adopting and implementing specific actions in malaria-endemic countries [11]. Table 3 provides starting points for the discussions and planning for action on implementing strategic changes in malaria governance.

Table 3. Implementing Strategic Changes in Malaria Governance

Strategic Changes in Governance	Specific Actions to Consider
1. Change the locus of decision-making	<ul style="list-style-type: none"> * Create a national malaria advisor to the president (or national leader) to give malaria top priority and political salience * Involve other sectors (such as agriculture) as core partners in a national malaria elimination committee to implement a strategy of multisectoral action * Elevate the position of the malaria control program within the Ministry of Health to give it more visibility, authority, access and priority * Channel more funding, technical support and accurate data directly to endemic communities to engage local political leaders and traditional chiefs and local leaders in malaria elimination
2. Change the package of interventions	<ul style="list-style-type: none"> * Engage other sectors of government in malaria control activities related to their domains, such as agriculture, housing and development, and environment, and hold them responsible (accountability) for specific targets in non-medical malaria control interventions * Invite private companies to “adopt a district” for malaria elimination, to implement strategy of private sector engagement in supporting the wider communities where workers live * Finance more innovation and research on malaria prevention, control and treatment technologies by endemic-country researchers

<p>3. Change the structure of accountability</p>	<ul style="list-style-type: none"> * Create incentives that encourage communities to treat fevers and seek out malaria treatment to reduce in-patient hospitalization * Use up-to-date data on malaria cases to create district-by-district and state-by-state league tables to hold political leaders accountable for malaria control * Create community-response teams for malaria, with budgets, that are accountable for implementing actions in communities against malaria * Introduce routine “malaria death review” processes to determine how every malaria death might have been prevented through earlier intervention * Support the growth of civil-society social movements for malaria elimination that hold traditional chiefs and local leaders accountable for continued progress on malaria at national level, and at the global level hold donors accountable for financing strategies that align with national priorities and plans
<p>4. Change the availability of public data on malaria</p>	<ul style="list-style-type: none"> * Make information on recorded malaria cases and deaths publicly available on a weekly basis by district and by state * Post weekly malaria data publicly on the internet and disseminate summaries in text messages to political leaders and traditional chiefs and local leaders at national, state and local levels
<p>5. Change communication about malaria</p>	<ul style="list-style-type: none"> * Create a strategic communications team and strategy for the national malaria program, in addition to IEC and BCC * Conduct a stakeholder analysis of public and private sector engagement in malaria as the basis for actions of strategic communications * Work directly with district assemblies/state legislatures or other local government structures to put malaria elimination on local policy agendas and budgets * Use monthly data on malaria deaths to change social values and de-normalize malaria health consequences

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**“Malaria in the Governance of District Health Systems:
Engaging Communities and Local Authorities,” by Nii Ayite Coleman**

Note: This preprint is part of the “Rethinking Malaria in the Context of COVID-19” series. All of the manuscripts produced in this effort will be submitted for peer-review and published as a compendium. This preprint is being made available to enable a broader discussion around key challenges and solutions.

The “Rethinking Malaria in the Context of COVID–19” global engagement was constituted as a consultative process to ‘take stock and push beyond conventional thinking to question fundamental assumptions and approaches, with a focus on bold new ideas to achieve real-world progress. The process managed by three governance bodies comprising a Steering Committee, Working Group Co-Chairs and contributing authors, and an External Advisory Committee. For a listing of the "Rethinking Malaria" Working Group Co-Chairs and contributing authors and External Advisory Committee members, see Text A1.

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Supporting Information:

Text A1: "Rethinking Malaria in the Context of COVID-19" website.

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Abstract

The goal of global malaria programs is to eliminate and eventually eradicate the disease. Achieving the global goal would require eliminating malaria in individual endemic countries. Are national malaria strategies adequate to achieve elimination of the disease? This study examines Ghana’s malaria strategy to determine its adequacy for the elimination of malaria in the country, with a focus on the governance of district health systems.

The study found Ghana’s malaria strategy to be medically oriented, focusing predominantly on the diagnosis and treatment of the disease. The strategy ignores the lifestyle and environmental determinants of malaria. There is limited engagement with stakeholders within districts, and the engagement is neither systematic nor sustained. Ghana’s malaria strategy therefore requires a systematic rethinking to mobilize the participation of communities in district governance for malaria.

The paper proposes several actions to restructure district governance of malaria. First, in Ghana, the malaria program must engage with key stakeholders in the district in a systematic and sustained approach in order to strengthen multisectoral action and community participation. This will require new accountability relationships for malaria progress within communities and between the District Assembly, the district health authorities and communities.

Second, malaria programs in other African countries need to be similarly redirected towards community health governance for malaria progress.

Third, the global malaria agencies must redefine malaria as a social problem and collectively adopt a social determinants approach to the development of national malaria programs.

The goal of elimination and eventual eradication of malaria without effective control of mosquito breeding and public health regulation is fundamentally flawed. Progress on malaria will require a paradigm shift from a medical perspective to a social determinant approach with a sustained and systematic engagement of all stakeholders in local communities.

Introduction

As national health systems and global health programs strive to improve the performance of health interventions, governance of health systems is receiving increasing attention. The proliferation of work on health systems governance over the past decade is based on the expectation that good governance will ultimately lead to better health outcomes.

The notion of governance is universal and found in many communal contexts such as families, clans, villages, associations, companies and nation-states. In each communal context, representatives are chosen to act on behalf of the collective. The domain of governance can be considered the relationships between the representatives and the represented aimed at ascertaining responsive and effective action in the interests of the collective.

There are multiple definitions of governance. The definition offered by Lehman and Gilson [1] demonstrates the multidimensional nature of governance: “ensuring that strategic policy frameworks exist and are combined with effective oversight, coalition building, regulation, attention to system-design and accountability.”

In practice, national governance is about the relationships between the government and the governed within a nation, and is dependent on arrangements set at the political or national level and enshrined in a national constitution. The constitutional arrangements for national governance form the basis of governance in all sectors of the economy including health, and for sub-national levels, including the district level. In the health sector, governance needs to be operationalized by individuals at lower levels in the health system. The importance of district health systems governance is increasingly being recognized as crucial to the achievement of universal healthcare coverage as well as sustained improvements in the performance of health interventions and outcomes, including malaria.

This paper explores the challenges of governance for malaria at the district level in Ghana and broader implications for other malaria-endemic countries. First, it outlines Ghana’s malaria strategy and assesses the nature and scope of engagement by the malaria program with communities, district authorities, and other stakeholders. Second, it examines the relationships between and within stakeholder groups in the district. Then, it discusses the challenges of district health system governance to the implementation of the malaria program. The paper concludes by making suggestions to facilitate improvement in the governance of the district health system in Ghana, with a consideration of broader implications.

The paper is based on a review of documents of the malaria program, interviews with some officials of the Ghana malaria program, and the experiences of the writer, who served at district, regional, and

national levels of the Ministry of Health in Ghana. In a 34-year career, he served as a medical practitioner in a few district hospitals, as a District Medical Officer of Health in Jasikan, as a Regional Director of Health Services in Brong Ahafo, and as Director of Policy, Planning, Monitoring and Evaluation of the Ministry of Health. As a Regional Director of Health Services, he supervised the implementation of the malaria program in the districts in Brong Ahafo region. He also worked with the Ministry of Local Government and the Accra Metropolitan Assembly from 2002 to 2004, and served as Director of the Accra Metropolitan Public Health Department.

Malaria strategy and engagement with stakeholders in the district

According to the global malaria elimination program, Ghana is classified as being in the malaria control phase. Malaria specific mortality among children less than 5 years old has declined from 14.4% in 2000 to 0.6% in 2012. The same level of success, however, has not been achieved with malaria morbidity [2].

The national malaria strategy was reviewed in 2013, and based on the recommendations from the review report as well as new and emerging interventions at the global level, Ghana's National Malaria Control Program, in August 2014, developed the National Malaria Control Strategic Plan for 2015 - 2020.

The plan, aimed at reducing the malaria morbidity and mortality burden by 75% (using 2012 as baseline) by the year 2020, had the following specific objectives:

1. To protect at least 80% of the population at risk with effective malaria prevention interventions by 2020
2. To provide correct diagnosis to all suspected malaria cases and prompt and effective treatment to 100% of confirmed malaria cases in accordance with treatment guidelines by 2020
3. To strengthen and maintain the capacity for program management, partnership, and coordination to achieve malaria programmatic objectives at all levels of the health care system by 2020
4. To strengthen the systems for surveillance and monitoring and evaluation in order to ensure timely availability of quality, consistent and relevant malaria data at all levels by 2020
5. To increase awareness and knowledge of the entire population on malaria prevention and control so as to improve uptake and correct use of all interventions by 2020

The thrusts of the strategic plan are to consolidate the recent gains, to accelerate malaria control in the high transmission areas, and to move towards establishing lower-transmission areas in Ghana by the end of 2020 [3].

Even though the strategy seeks "to increase awareness and knowledge of the entire population on malaria prevention and control," the engagement with stakeholders by the malaria program is constrained by a medically oriented strategy. The Social and Behavior Change Communication (SBCC) Strategy for the National Malaria Control Programme [4] has a limited scope of activities based largely on national and regional mass media campaigns. Facility- and community-based interpersonal communication activities are targeted at adherence to national malaria case management guidelines and prompt care seeking. School-based interpersonal communication activities, in tandem with school-based Insecticide Treated Nets (ITN) distribution activities, have focused on correct and consistent use of ITNs and ITN care practices. The communication strategy focused on "Advocating to political leaders, policy makers, opinion leaders and corporate bodies for support for malaria control" and "Sustaining communication, education, and community mobilization to increase knowledge among the general population to enhance uptake of malaria prevention interventions" [5].

The community mobilization is implemented predominantly through the District Health Service, and engagement with stakeholders has to be carried out by the District Health Management Team (DHMT). The Ghana Health Service legislation, Act 525 of 1996, makes provision for a certain degree of engagement with some stakeholder groups through the District Health Committee [6]. Section 23 of the Act establishes the District Health Committee.

A District Health Committee shall comprise the following members - a) a chairman; b) the District Director of Health Service; c) two representatives of the District Assembly; d) one representative each of the Christian and Muslim religious groups in the district; e) two health care personnel in the district one of whom shall be from the private sector; f) a representative of the Traditional Councils in the district; and g) two other persons at least one of whom shall be a woman.

The core function of the District Health Committee is advisory. Section 24 (1) of the Act says:

A District Health Committee shall advise the District Director of Health Service in the performance of his functions in the district and shall perform such functions of the [Ghana Health Service] Council in the district as the Council may assign to it.

Apparently, the District Health Committees are not in place. As a result, engagement with stakeholders is adhoc and often associated with implementation of specific activities such as distribution of bednets and larviciding. In the words of one district malaria focal person, there are “no real relationships ... we only engage stakeholders when we have a program.” “We deal with the hospital when there are any problems with data such as when there is a variation between the number of diagnosed cases and the number of patients treated” (District focal person, 2021). In some districts, larviciding is carried out by private companies without the knowledge and participation of the Public Health Department of the District Assembly. “We should have involved them [the District Public Health Department] but ...,” said one district malaria focal person. In most districts, engagement within the health system is very limited. It appears there is limited stakeholder participation in the malaria program, and it is prescriptive without accountability to beneficiaries.

The lack of effective engagement of stakeholders in the malaria program can be attributed not only to its medical orientation and the rigidity of program protocol. The absence of the District Health Committees as stipulated by Act 525 of 1996 demonstrates the institutional incapacity or unwillingness of the Ghana Health Service to engage with a broad spectrum of stakeholders over the long term.

The current malaria program is dominated by a medical approach; malaria is viewed as a disease requiring treatment in a healthcare facility. The medical approach can only keep Ghana in the control phase. Ghana’s malaria strategy is inadequate to achieve elimination and eradication of malaria.

Malaria is a social problem because it is influenced by social determinants such as lifestyle and environmental factors. It is the outcome of the interaction between environmental and lifestyle factors leading to poor sanitation and indiscriminate disposal of anything and everything, anywhere and everywhere. The result is uncontrolled mosquito breeding in communities. Malaria cannot be eliminated without eliminating the major mosquito breeding sites. Malaria elimination and eradication must therefore address mosquito breeding in every community in Ghana. The goal of elimination and eventual eradication of malaria without effective control of mosquito breeding and public health regulation is fundamentally flawed. Elimination and eventual eradication of malaria would require a paradigm shift from a medical perspective to a social determinant approach. A social determinant approach to malaria

would engender a sustained and systematic engagement with the whole spectrum of stakeholders in the communities.

Quenum, while addressing the WHO Regional Committee for Africa in Kampala, in September 1976, said

We can no longer consider health programs without reference to other sectors of socioeconomic development. Development as we conceive of it should be a total dialectic of progress, achieved through a continual dialogue between equal partners ...

The myths of the past imposed a dichotomy between politics and health, a dichotomy between socioeconomic development plan and the health program, as if health, which is essentially a social sector, could be dissociated from the national will expressed through a particular political choice. Among present-day myths, we should mention the view that external aid is necessary and inevitable in the socioeconomic development of the less-favoured countries, this development being very frequently regarded merely as a collection of disparate efforts to catch up a supposed lag, in relation to the so-called developed countries, as if there were only one single model of development.

Quenum [7] added that

We must also devise new procedures for strengthening health services. This requires a special effort to make the most of local resources, particular manpower. It is fair to say that there can be no development without using all human resources to full advantage, i.e. without material and cultural development of the people as a whole. Regrettably, the existing health delivery systems exclude the communities concerned; their health and their environment can be improved only if they play an active part in the systems organized for that purpose. That is why all our future efforts must be aimed at enlisting authentic community participation so as to help its members become aware of their needs and to encourage them to cooperate in finding solutions and managing services.

Elimination and eventual eradication of malaria require a more nuanced appreciation of malaria as a social problem that calls for a coherent community response.

Relationships between and within stakeholder groups in the district

Various malaria stakeholder groups exist at the community and district levels in Ghana. There are several stakeholder groups within the community, including households, youth organizations, women's groups, religious organizations, elected local officials, and traditional leaders. The other key stakeholders are the healthcare service providers, the district health authorities, and the district assembly.

Households and Community-based Organizations

Malaria is endemic in Ghana and every person living in the country is at risk of contracting it. It is the number one killer of children and the leading cause of reported morbidity in the country. Households as well as the various women's groups, youth organizations, and religious bodies in towns and villages across the country are stakeholders in malaria. Indeed, everyone living in Ghana has an interest in the control, elimination, and eventual eradication of malaria.

By virtue of the different roles people play in society, individuals and groups often have other stakes in malaria besides self-interest. Civil society organizations, both indigenous and international, are growing in numbers and have emerged as an important stakeholder group representing the voiceless people. For example, there is a National Coalition of NGOs in Health and a specific coalition of NGOs in malaria. Increasingly, civil society organizations are becoming active in the implementation of social programs including malaria in districts across the country.

Healthcare Service Providers

Healthcare services in the district are provided through facilities with varying capabilities and owned by various groups including government, private and religious organizations. Public services are provided by the District Health Service (DHS), usually through a network of health centers, clinics, CHPS compounds and outreach centers with a district hospital serving as a referral facility. This public network provides allopathic medical care and preventive medicine including maternal and child health services and immunization. A few district hospitals around the country are now also practicing herbal medicine.

National legislation on traditional and alternative medicine has engendered a growth in pluralism in healthcare delivery. As a result, although allopathic medicine is dominant, under the guise of alternative medicine, other forms of healthcare practices are springing up [8]. The production and use of traditional herbal preparations are growing, and traditional medical practitioners such as Traditional Birth Attendants, herbalists, bone-setters, and spiritualists are still well patronized. Allopathic medicine does not have a monopoly over the diagnosis and treatment of malaria.

District Health Authorities

The district health system is characterized by multiple care systems, varied ownership, and fragmented leadership. The current legislation regime on districts has created a District Health Service of the Ghana Health Service and a Public Health Department of the District Assembly. Therefore, there is no single district health authority. The Public Health Department of the District Assembly, made up of health inspectors, is responsible for public health services, oversees sanitation and waste management, and enforces public health regulations. The District Health Management Team (DHMT) oversees health centers, clinics, CHPS compounds and outreach services, and the district hospital under the medical superintendent provides a comprehensive range of basic healthcare services including emergency surgery, blood transfusion and laboratory services [6]. In essence, the district health leadership is fractured along the three core health services—medical care, preventive medicine, and public health services—each with a different source of funding.

Traditional Council

For the majority of Ghanaians, traditional leaders, chiefs, in villages and communities are the frontline authorities and are regarded as representatives of the people in their respective towns and villages.

Ghana's traditional system of government "has evolved along ethnic lines of affinity" and predates colonialism [9]. For example,

The Asantes were politically united under the Asantehene before colonial rule ... At the side of the Asantehene stands the Asanteman Council, composed of paramount chiefs of the member states of the Asante confederacy. The paramount chiefs assist the Asantehene in his direction of the affairs of the Asante nation. The paramount chiefs also hold positions in their own states.

As paramount chiefs of their states, they govern their people with a council comprised of elected representatives of the state. Similarly, sub-chiefs and village chiefs serve their smaller communities with the help of elected representatives from the local communities.

Within these communities the town chief or village head serves the people as the leader of the community. But he consults with a council which is made up of the heads of the respective lineages who are resident in the village or the community. In other words the political structure of the Asante social system radiates the authority of the Asantehene through to the level of the extended family network. As argued by Apter, this political structure reveals a logic and a degree of centralization that is capable of providing a stable government with the consent of the governed. For example, to be eligible for a village chief, the person is selected only from among the members of the royal family. But the final choice, from the number of eligible persons requires the approval of the constituent commoner groups in the community. A poor selection could be deposed by popular demand.

This political system is in evidence today in the traditional society. It is popularly known as an “indirect system of Government” meaning that at the Governmental level (central government of Ghana) the chiefs are given the authority to deal with traditional matters [10].

The legitimacy of traditional political authority is enshrined in Ghana’s constitution and institutionalized with the existence of a Ministry of Chieftaincy Affairs. Article 270 of the 1992 Ghana constitution [11] guarantees the institution of chieftaincy together with its traditional councils as established by customary law and usage.

Traditional Councils have stakes in the well-being and development of their people. The endorsement of chiefs, though informal, is important for the implementation of public sector projects and programs in communities within districts.

District Assembly

Ghana’s current phase of decentralization began in 1988 with the promulgation of PNDC Law 207. Article 240 of the 1992 Ghana constitution stipulated “a system of local government and administration which shall, as far as practicable, be decentralized” [11]. The Local Government Act of 1993 (Act 462) sanctions the District Assemblies to be responsible for the overall development in the districts through the exercise of deliberative, legislative and executive powers [12].

The decentralized system comprises a two-thirds elected and one-third appointed District Assembly (DA) headed by a non-elected District Chief Executive (DCE) appointed by the President in accordance with the constitution [11].

The DA operates under the committee system. It has two committees, the Audit and Executive Committees. The Executive Committee (EC) is headed by DCE and serves as the cabinet. The EC has five statutory sub-committees namely, Finance and Administration, Development Planning, Social Service, Justice and Security, and Works. The DA also has elected sub-district councils and committees - locally elected officials in the communities.

The role of the District Assembly is to coordinate and oversee implementation of public programs by the decentralized departments of the Public Service. These departments provide the needed technical advice and carry out the actual implementation of policies, projects and programmes of the Assembly and

Government. The coordination and oversight of social services is by the Social Services Sub-committee (SSSC) of the District Assembly. It comprises heads of district departments and agencies providing social services such as health, youth and sports, education, water, community development, physical planning, agriculture, disaster prevention and management, and social welfare.

Beyond coordination, the Social Services Sub-committee also has a strategic function. It is expected to:

- take a comprehensive and long term look at areas of social development in the district, in particular education; health, social welfare, sports, culture;
- develop the information base on these areas of social development;
- identify the strengths and weaknesses in the social services areas; prepare a social development plan (long, medium and short term), for the district;
- examine the implications of the social development plan on other sub-sectors of the district economy; and
- submit the plans to the Executive Committee for harmonization.

“The District Assemblies were to be the foundation on which Ghana’s new democracy was to be erected. The thrust of Ghana’s policy has been to promote popular participation by shifting processes of governance from command to consultation, and by devolving power, competence and resources and means to district level” [13]. However, “Fiscal decentralization remains one of the most intractable problems” [13].

The absence of fiscal decentralization is a major roadblock in the evolution of decentralization in Ghana. Without fiscal decentralization, the decentralized departments of the DA continue to be funded through their respective sector Ministries. As a result, district heads of departments and agencies have stronger vertical alliances to higher levels of their sectors ministries than to the District Assembly. The DA is funded through an irregular and unreliable District Assembly Common Fund and the meagre local taxes it is able to collect. The DA has severe budgetary constraints and does not have effective control over departments and their programs in the district.

In practice, the absence of fiscal decentralization has paralyzed the DA, rendered the SSSC weak and ineffective, and made assembly members as well as the sub-district structures—zonal councils and the unit committees—almost redundant in their communities. As a result of the ineffectiveness of the Social Sector Sub-committee, multisectoral action is incoherent.

The District Assembly’s inability to effectively coordinate the decentralized departments is a significant challenge to the malaria program and other programs dependent on some form of multisectoral collaboration. The fractured district health leadership and the complicated financing architecture of the district turn departmental programs into vertical programs, hampering the development of alliances and coalitions, and forestalling multi-sectoral collaboration.

Succinctly, there is an absence of accountability relationships between and within the District Assembly, the district health authorities, and the communities.

Challenges of district health systems governance

Ghana’s decentralization process has a long history that predates independence and began with efforts by the colonial administration to establish a local government system. After the initial “Indirect Rule” through the Traditional Councils, disagreements over taxation and other issues between the colonial

administration and the Traditional Councils led to the establishment of an alternative and parallel modern local government system; the 1944 Native Authority Ordinance neglected the traditional authorities and put the colonial administration in direct control of the localities [9].

Since independence in 1957, subsequent governments have focused entirely on developing a local government system that is an appendage of the central government. Traditional political authority, though legitimate, has been marginalized in the national development agenda. As a result, traditional political authority and modern local government offer disparate political leadership at the community level, impeding systematic local development. The dichotomy between traditional and modern political authorities present formidable challenges in the relationships between the District Assembly, the district health authorities, and the communities.

The key challenges within the District Assembly, the district health authorities and the communities are:

1. Dichotomous political leadership and unaccountable frontline workers

Both traditional and modern political leadership have constitutional legitimacy but chiefs and elected officials within the community have often been unable to provide collective community leadership. The decentralization policy has left a gap in local governance by failing to create a working interface between traditional and modern political authorities at the community level.

The challenges of governing district health systems are inseparable from the burdensome challenges of local government reforms and decentralisation in Ghana and from the perennial journey “towards democratic local government structures, and accountable systems of public administration that are able to deliver on the developmental demands of the people” [13].

2. Weak District Assembly and ineffective SSSC hamper intersectoral collaboration, coordination and efficiency

The DAs do not have strategic policy frameworks that would help foster multi-sectoral collaboration and coordination of the implementation of departmental programs. What exists as a district agenda is the disparate projects and programs of the central government implemented through the various ministries, departments and agencies. The notion of a composite district budget remains an idea and requires fiscal decentralization to become reality. In essence, there is no district malaria agenda, no district health agenda, and no coherent district agenda.

3. Legal regime fractures district health leadership

Currently, the three components of the district health system, that is, medical care, preventive medicine and public health services, operate independently without any set of arrangements to foster sustained collaboration and the coordination of health programs in the district. There is no joint planning for health in the district, and there is no district health strategy. In sum, the district health system does not own the malaria program.

The Way Forward

Exploring the challenges of district health systems governance for malaria raises broader questions about the relationship between central and local governments, about the political economy of global health, about local development and the delivery of social services, about health as a catalyst for community

development, about the relationship between traditional political authority and modern political authority, and about the governing of community health.

Such questions may seem intractable. However, an effective community response to malaria requires establishing improved relationships between traditional and modern political authorities at the district level in Ghana.

The constraints of stakeholder engagement encountered by the malaria program is an indication of the need for better governance of malaria in Ghana; the need for “the alignment of multiple actors and interests to promote collective action towards an agreed upon goal” of the malaria program [14]. Malaria control in Ghana has been managed by experts in the health sector. For the elimination and eradication of malaria, better governance of community health is essential.

Ahwoi [13] indicated the need to promote popular participation by shifting processes of governance from command to consultation, and noted that

The trends in Local Government Reforms and Decentralisation in Ghana today are quite clear. They are towards democratic local government structures and accountable systems of public administration that are able to deliver on the developmental demands of the people. There have been very positive achievements, but a lot also remains to be done. What we all ought to remember, however, is that decentralisation is a process, not an event. We must therefore not throw up our hands in despair when we confront obstacles. Ours is to devise strategies to overcome those obstacles.

“Whether we like it or not, we are now in the midst of a health revolution since in order to shoulder our responsibilities when we come to the choice of social justice we require a total renewal of health system through an intelligent combination of mental and social changes making the communities able to promote, in cumulative and lasting fashion, their own state of health” [7].

Bossert and Brinkerhoff [15] identified four principles that could assist in changing the culture of governance of health systems. First, governance rules should ensure some level of accountability of the key actors in the system to the beneficiaries and the broader public. Second, health governance involves a policy process that enables the interplay of the key competing interest groups to influence policy making on a level playing field. Third, health governance requires sufficient state capacity, power, and legitimacy to manage the policy making process effectively. Finally, governance depends upon the engagement and efforts of nonstate actors in the policy arena as well as in service delivery partnerships and in oversight and accountability.

Community Health Governance

District health systems governance is about accountability relationships between and within the communities, the district health authorities, and the district political authorities. Effective governance of district health systems depends on better governance of community health in towns and villages in the district. Community health governance is about establishing accountability relationships between and within traditional leaders, elected local officials, civil society organizations, community-based organizations, and healthcare service providers.

“A weak system of accountability renders the task of public management difficult and the establishment of good governance unattainable” [16]. Good governance in health requires the existence of standards,

information on performance, incentives for good performance, and, arguably most importantly, accountability” [17]. Ackerman described accountability as “a proactive process by which public officials inform about and justify their plans of action, their behavior and results, and are sanctioned accordingly” [18].

Community health governance offers the pathway to engaging all stakeholders in a systematic, sustained and dynamic manner. For malaria, community health governance is the coming together of stakeholders in the community to determine what to do about mosquito breeding; to oversee the activities to control mosquito breeding; to monitor progress in the control of mosquito breeding; to ensure the community has access to the diagnosis and treatment of malaria; to monitor the number of malaria cases and deaths from malaria; and to hold the malaria program and public officials (i.e., the District Assembly and the District Health Service) accountable. Community health governance would strengthen the mobilization and effective use of human and financial resources within the community and engender public-community partnership for health development, including malaria.

The notion of community health governance is within the context of the national development framework of decentralization articulated by Article 240 of Constitution, Local Government Act of 1993 [12] and related subsidiary legislation; and “towards democratic local government structures, and accountable systems of public administration that are able to deliver on the developmental demands of the people” [13].

This paper thus advocates for the nurturing of community health governance as an integrated component of the national malaria program. It envisions communities with unified political leadership and established accountability relationships between community political leaders, civil society, and frontline service providers.

To achieve the vision of community health governance, three strategies are suggested:

1. Foster alliances and coalitions to govern community health
 - Facilitate alliances between elected local officials (assembly, zonal council and unit committee members) and traditional leaders (chiefs and elders) in the communities to support and coordinate community projects and programs, to oversee frontline workers in the community, and to ensure efficient use of resources available
 - Foster coalition between community groups, religious groups, and other civil society groups
 - Nurture community health governance by establishing accountability relationships between traditional and elected leaders, civil society, and frontline service providers
2. Develop the capability of the Social Services Sub-Committee of the DA to engender multi sectoral action
 - Strengthen the SSSC’s capability to coordinate and oversee the implementation of social programs in the district through strategic technical support, continuing education, and logistic support in a sustained manner
 - Facilitate the development of a strategic policy framework for malaria and health
3. Promote a more unified district health leadership under a District Medical Officer of Health (DMOH) to develop a district strategy

- Foster more unified leadership of the district health system through joint planning, monitoring of implementation and assessment of performance
- Recruit and develop DMOH for district health leadership
- Promote the development of district health/malaria strategy by bringing three components of the malaria program into a single district malaria implementation strategy with oversight from the SSSC of the DA

Given adequate institutional incentives, effective engagement can strengthen direct accountability relationships between the communities, the District Assembly and the district health authorities [19].

In the medium term, improvement in some dimensions of malaria governance such as coalition building, oversight and accountability has the potential to enhance program implementation and result in better health outcomes. Effective community health governance has the capability to enhance the implementation of Ghana's malaria program, to improve the chances of malaria elimination and eradication, and to engender community development.

Conclusion

Primary health care is the mechanism for attaining universal healthcare coverage in Ghana and remains the cornerstone of health development in Ghana. Section 3 (2) of the Ghana Health Service Act 525 of 1996 [6] highlights the importance of primary health care in Ghana's health development strategy.

For the purpose of achieving its objects, the [Ghana Health] Service shall perform the following functions - a) ensure access to health services at the community, sub-district, district and regional levels by providing health services or contracting out service provision to other recognized health care providers; ... c) plan, organize and administer comprehensive health services with special emphasis on primary health care ...

"Primary health care means the provision of essential services which correspond to basic needs, made available through acceptable technology and made universally accessible with the full participation of the community. It includes at least eight essential components: appropriate health education, promotion of food supply and proper nutrition, basic sanitation including an adequate supply of safe water and hygienic waste disposal, maternal and child health care, including family planning, immunization against major infectious diseases, prevention and control of locally endemic diseases, appropriate treatment of common ailments and injuries, and the provision of essential drugs. As this list shows, primary health care is comprehensive care comprising promotional, preventive, curative and rehabilitative care. It is provided at local level, at the point of entry into the national health system, which is simply a coherent entity of institutions and resources with multiple aims. As an integral part of this coherent entity, primary health care is given the support of the referral facilities of other levels of the health pyramid, namely intermediate and central levels. Setting up such a system efficiently in Africa requires the fulfillment of certain preconditions, given the chaotic situation at present prevailing in health development" [7].

Most African nations have, after attaining political independence, under the guidance of WHO Regional Office for Africa, followed this strategic path for health development.

Primary health care forms an integral part of the country's health system, of which it is the central function and main agent for delivering health care. It is also an integral part of the overall social and economic development of the community. For these reasons, the concepts of primary

health care, as decided in Alma Ata, should be the driving force behind the determination of policies and should be kept in mind when formulating strategies and plans for action [20].

One of the underlying concepts of primary health care that has been widely promoted is community participation.

Measures have to be taken to ensure free and enlightened community participation, so that notwithstanding the overall responsibility of governments for the health of their people, individuals, families, and communities assume greater responsibility for their own health and welfare, including self-care. This participation is not only desirable, it is a social, economic and technical necessity. Governments will therefore have to devise appropriate ways of promoting such participation, supporting it, effectively propagating relevant information, and establishing or strengthening the necessary mechanisms. Governments, institutions, members of health professions as well as all agencies involved in health and development, will therefore have to take measures to enlighten the public in health matters so as to ensure that people can participate individually and collectively, as part of their right and duty, in the planning, implementation and control of activities for their health and related social development [20].

The concept of community health governance is an enhanced interpretation of community participation. The bedrock of community participation under primary health care is the village health committee. Community health governance builds on the achievements of the village health committees established by the primary health care program. In essence, community health governance is an adaptation of an old primary health care concept by revising the composition of the village health committee to include all stakeholder groups in the community, and broadening its functions to encompass accountability. Community health governance would nurture accountability relationships between the entire spectrum of stakeholders in the community and thereby engender better district health systems governance.

Community health governance is the next logical step in the development of health systems in Ghana. The concept builds on the foundations of decades of development of primary health care policy and programs, community participation and village health committees, alongside the development of district health systems. Community health governance is the mechanism to make the paradigm shift from a medical orientation to a social determinants approach reality.

Implications for Action

A paradigm shift to social determinants approach calls for reorientation of how malaria is handled at the community, district, national and global levels. There are broader implications for consideration in Ghana, in other African countries, and within the global malaria agencies.

First, the Ghana malaria program must engage with the key stakeholders in the district in a systematic and sustained approach in order to make progress towards elimination and eradication of the disease. This would require nurturing, fostering or facilitating alliances and coalitions among stakeholders and strengthening multisectoral action. The malaria program must invest in establishing accountability relationships within the communities and between the District Assembly, the district health authorities and the communities.

Second, malaria programs in other African countries need to be similarly redirected towards community health governance. The district health system exists in most former British colonies and decentralization

is taking place in most of those countries. As a result, the specific country contexts for malaria programs are similar to what pertains in Ghana, making the proposals relevant and applicable.

Third, improving malaria governance at the district level in African countries has implications for the governance of malaria at the global level. It calls for a rethinking of the malaria problem by the global malaria agencies. The high malaria burden - the morbidity and mortality from malaria - is an indication of a fundamental problem in African societies. Malaria is a social problem; an indicator of social underdevelopment, poor living standards, and unacceptable quality of life. COVID-19 may have opened the global policy window to enable consideration of fresh policy initiatives to address the problem of malaria in Africa. **The global malaria agencies must, as a matter of urgency and with unity of purpose, redefine malaria as a social problem and collectively adopt a social determinants approach to the development of national malaria programs.**

Beyond opening the global policy window, COVID-19 also offers valuable lessons about strengthening local health systems and facilitating community organization in preparedness for the next pandemic. Redefining the malaria problem as a social one would expand the options for addressing the malaria problem beyond healthcare delivery to include community response. Given adequate institutional incentives, a community response initiative would facilitate the forging of relevant alliances and coalitions, engender the alignment of multiple stakeholders and interests to promote collective action, and lay the foundation for establishing community health governance. We may find a post-COVID-19 policy window that provides an opportunity to put community health governance on the global malaria policy agenda.

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**“Rethinking Malaria: Governance Lessons
from Other Disease Programs,”**
by Kelechi Ohiri, Ifeyinwa Aniebo, and Olufunmilayo Akinlade

Note: This preprint is part of the “Rethinking Malaria in the Context of COVID-19” series. All of the manuscripts produced in this effort will be submitted for peer-review and published as a compendium. This preprint is being made available to enable a broader discussion around key challenges and solutions.

The “Rethinking Malaria in the Context of COVID–19” global engagement was constituted as a consultative process to ‘take stock’ and push beyond conventional thinking to question fundamental assumptions and approaches, with a focus on bold new ideas to achieve real-world progress. The process managed by three governance bodies comprising a Steering Committee, Working Group Co-Chairs and contributing authors, and an External Advisory Committee. For a listing of the "Rethinking Malaria" Working Group Co-Chairs and contributing authors and External Advisory Committee members, see Text A1.

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Supporting Information:

Text A1: "Rethinking Malaria in the Context of COVID-19" website.

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Abstract

The global disruptions brought about by the COVID-19 pandemic as well as the stagnation of progress of global malaria elimination efforts have provided an opportunity to rethink several aspects of the global malaria program, including its governance at all levels from the communities to the global level. Approaching this requires an examination of the critical governance factors that impact malaria elimination as well as lessons that could be learned from other global health success stories in disease elimination.

The paper, therefore, first identifies and defines factors that could strengthen malaria program governance at the global, national and sub-national levels, and develops a conceptual framework

highlighting eight governance themes. These include 1) International support and coordination; 2) Financing; 3) Data use for engagement and decision making, 4) Country ownership; 5) National Program structure and management, 6) Community support/ engagement; 7) Multisectoral engagement; and 8) Technology and innovation.

Secondly, the paper identifies four successful global disease elimination programs ((1) the global smallpox eradication program; (2) polio eradication efforts (focus on Latin America); (3) the onchocerciasis eradication program; and (4) global COVID-19 pandemic) and conducts a comparative analysis of these programs against the eight governance themes. The paper drew lessons and insights from these programs and outlines the implications for the malaria elimination efforts.

The paper concludes by making four distinct recommendations for improving governance of malaria eradication programs and demonstrates how other successful global disease elimination programs could provide additional ideas and inspiration for a more robust push towards malaria eradication.

Introduction

In May 2015, the World Health Organization, through its Global Technical Strategy for Malaria 2016–2030 [1], provided a comprehensive framework to countries and development partners to scale up malaria responses and move towards elimination. This document set the target of reducing global malaria incidence and mortality rates by at least 90% by 2030. However, since 2015, the reduction in the global burden of malaria appears to have stagnated with only marginal annual reductions in the case burden. There is also a slowing of the rate of decline of malaria case incidence (i.e., cases per 1000 population at risk) since 2015 [2]. As progress has stalled, the global community is recognizing the need to rethink its approach to malaria elimination. As part of this process, the WHO has called for an aggressive new approach in the 10+1 countries with the highest malaria burden: the “High Burden to High Impact” initiative [3].

The Covid-19 pandemic has created another major obstacle to progress in reducing the global malaria burden, particularly in its diversion of human and financial resources essential for malaria services and interventions. On the other hand, the pandemic also gives an opportunity to rethink the approach to malaria and learn from other programs that have successfully eliminated or eradicated infectious diseases such as smallpox, polio and onchocerciasis. Although these programs may have different disease dynamics and interventions, there are relevant and useful lessons to learn that can be applied to the global malaria eradication program, since these programs have financial, political, administrative, and operational similarities.

In this paper, we investigate governance issues that impact malaria elimination efforts by reviewing and identifying factors that can strengthen malaria program governance at the global, national and sub-national levels. The paper also includes a section on approaches and methodology and a discussion that highlights the key lessons learnt from successful disease programs, analyzed through a conceptual framework of governance factors grouped into eight themes. The paper concludes with lessons the malaria elimination program could learn from other successful disease programs and offers a few recommendations to achieve this goal.

Malaria governance challenges

Governance in the health sector commonly refers to the use of formal and informal institutions, processes and rules by states, nonstate actors and intergovernmental organizations to manage challenges to

improving health conditions [4]. The governance of malaria control and elimination typically involves many different players, and can result in competition for leadership, influence, and resources at the global, national and community levels. We briefly review some of the challenges at these three levels.

At the global level, the number and variety of global health problems on foreign policy agendas has increased and continues to expand [5]. This creates two main issues for global health governance. First, global health problems generate different levels of interest from countries/ partners. Countries tend to be more interested in problems that directly threaten their interests. This pattern can be seen in the level of attention given to direct, cross-border transmission of dangerous communicable diseases such as Ebola. On the other hand, diseases that do not involve such transmission (including noncommunicable diseases) are perceived to get less attention. Secondly, the need to prioritize resources and responses may create a zero-sum scenario, often resulting in disagreements about how priorities are established [6] and complaints about some disease programs getting a disproportionate share of attention and resources. It is not surprising this paper is being written against a background of perceived diversion of attention and resources to combating the COVID-19 pandemic, rightly or wrongly. Whilst malaria gets more attention on the global agenda than neglected tropical diseases, it does not get as much attention as HIV/AIDS or COVID-19. In fact, in West Africa for example, donor support for malaria is seen to be waning [7].

At the country level, the governance of malaria can have a direct impact on elimination of the disease. In malaria endemic countries, the National Malaria Control/ Elimination Program (NMCP/NMEP) is responsible for developing malaria policies and strategies and provides technical leadership for the Ministry of Health (MOH) with respect to malaria prevention and control [8]. Organizational structure (administrative location), the effectiveness of administrative processes (earmarking and financial control), and strong leadership (assertion of state ownership and resourcefulness of leaders in overcoming bottlenecks) appear to influence the performance of malaria programs [9]. In addition, the financing dynamics, particularly the balance (or lack thereof) between donor and domestic funding, may have an impact on the level of alignment of such funds with country's needs and priorities. Recipient countries often have restricted autonomy over donor resource allocation (which could be quite significant and influential), hence limited power to make decisions on how best to use donor resources to implement malaria programs in their own countries [7].

At the community level, the main challenge is the level of ownership the community has over malaria programs. This affects how communities respond to the implementation of policies. When the views of the community, who are the primary participants of policy implementation, are not fully considered during policy development, they are less likely to take ownership of the interventions during implementation [10]. For example, communities may accept free Long-Lasting Insecticidal Nets (LLINs) but not use them correctly. Most successful public health programs have involved significant community engagement in co-creation and involvement in implementation.

Methodology/Approach

Our approach to writing this paper involved reviewing existing literature and conducting key informant interviews with stakeholders who have been involved with or led implementation of disease eradication programs, including national malaria elimination programs. To better understand governance challenges in malaria elimination programs and draw on lessons from other successful disease programs, we examined challenges in malaria governance, globally and within countries, and reviewed published literature and case studies on successful disease programs. Based on our review, we created a conceptual framework of governance factors associated with program success and grouped them into eight themes (see Table 1).

Table 1: Governance themes in disease control programs

Governance theme	Definition and description
International support and coordination	Coordinated advocacy and action by institutions or countries towards a global goal; support by global champions
Financing	Significant resource mobilization and funding from countries/ institutions (both domestic and international)
Data use for engagement and decision making	The impartation, communication or exchange of information and insight, and its use in decision making
Country ownership	In-country leadership and action by national and subnational governments and other actors
National Program structure and management	The organization, leadership and management of a country's disease program at the national level
Community support/ engagement	Support organized at the community level, involving community leaders, or other groups, e.g., religious, civil society organizations
Multisectoral engagement	Coordinated and collective action and involvement of other sectors (e.g., finance, private sector, environment) at all levels
Technology and innovation	Availability and diffusion of innovation (and research) including non-complex scientific/medical interventions.

Overview of successful global disease programs

The next step in our analysis was to apply the eight governance themes to other disease programs and seek lessons for malaria elimination efforts.

This analysis recognizes that disease control programs differ in many ways. For instance, they involve different pathogens (some are viruses, whilst some bacteria), they affect different geographic regions/populations, and some are yet to be fully eradicated. Nonetheless, there are still governance lessons to draw from these programs that could be applicable to the malaria eradication efforts.

For the purpose of this paper, we focused on four disease programs: 1) the global smallpox eradication program; (2) polio eradication efforts (focus on Latin America); (3) the onchocerciasis eradication program; and, (4) global COVID-19 pandemic responses. Appendix 1 presents a table with the eight governance themes identified for these four disease programs. Appendix 2 provides brief case studies for the four programs.

The next section presents key lessons for each of the eight governance themes, based on our analysis of the four disease control programs.

Discussion of key lessons for the eight governance themes

International support and coordination

One of the main features of the successful programs was a high level of international collaboration, advocacy and support that galvanized the world to prioritize and tackle these issues. There was no common pattern to the origin of such international support, beyond the presence of an influential global leader who made the programs part of their legacy. In the case of smallpox, the eradication effort coincided with the reemergence of the Soviet Union on the global scene and the opportunity to exercise some soft power, through the then Deputy Minister of Health. It helped that the United States was also fully engaged and its presidents emerged as champions for these causes. (For example, President Roosevelt created the March of Dimes to support polio eradication and President Johnson sought to lead efforts by the UN and provided support to the smallpox eradication.) In other instances, it was technocrats, such as World Bank President Robert McNamara, who supported the onchocerciasis program after a visit to Burkina Faso in 1972. With regards to COVID-19, we have seen both some degree of global solidarity – through the establishment of the COVAX facility – but also a lack of global cooperation through increasing vaccine nationalism. This suggests three lessons about international support and collaboration:

- The global champion or influencer plays a critical role by promoting and pushing international cooperation as a legacy.
- Global efforts need to be anchored within a multilateral organization (such as WHO or the World Bank) to convene the best minds and to organize operations to achieve this goal in a short to medium term.
- Global collaboration is critical for success (over public health nationalism).

Implications for Malaria: Malaria needs to identify a global champion (perhaps a world leader or head of an influential global organization) who can accelerate and promote eradication as a global priority. Questions that the global malaria community need to reflect on include: Would malaria benefit from a global political champion? Would the focus on elimination or eradication resonate better politically than more nuanced approaches e.g., control?

Financing

Closely linked to global advocacy is international and domestic resource mobilization to support the global efforts at disease control and elimination. There was international financial support for smallpox, polio, and onchocerciasis from a combination of players in global health, ranging from multilateral institutions to the private sector. For example, in the case of smallpox, in addition to the countries committing resources to the eradication effort, there was significant resource mobilization by the international community. The World Health Assembly (WHA) committed to a minimum annual spend over 10 years, and the US committed 5-year financing. However, domestic resources from countries with smallpox also played a large role, as more than two-thirds of the financing between 1967 and 1978 came from endemic countries. A similar situation occurred in Latin America’s polio eradication program, where endemic countries contributed \$74 million of the \$120 million spent in the first five years of the program. With the COVID-19 pandemic, the world has witnessed unprecedented resource mobilization for the health response, as well as for financing to cushion the impact on the economy (micro and macro). Most

of this is at the national level, but internationally, a lot of financing has also been mobilized.

Implications for Malaria: Key questions for malaria (for both donors as well as national governments of endemic countries) are: whether current funding is enough, given the global burden; whether current funding levels can be sustained, given other demands; and if current funding is being effectively utilized? These questions require coherent and persuasive responses from the global malaria community. For example, malaria programs today frequently experience challenges with expenditure, including delays. Grants from the Global Fund to Fight AIDS, Tuberculosis, and Malaria are not spent on schedule in many countries due to various reasons, such as weak data systems, delays in procurement, and lack of human resources. The smallpox eradication program created a flexible fund to address implementation bottlenecks in endemic countries as they arose. This method could be applied to malaria elimination programs, provided there is sufficient transparency and accountability to ensure that funds are spent for their intended function. Investment in local manufacturing as a means of reducing dependence on donor-funded commodities (such as bed nets) may also need to be considered.

Efforts must also be made to reduce the cost of eradicating malaria and make it more affordable. One reason for the pivot away from earlier efforts (in the 1960s) at malaria eradication to smallpox was the cost of the program per person. According to an interview with D.A. Henderson, the malaria program accounted for over 20% of all funds available to WHO in the 1960s [11]. This was perceived as unsustainable as it resulted in less funding being available for other programs, coupled with the realization that eradication would be more costly and take longer than planned. The onchocerciasis eradication program on the other hand, cost \$1 per person protected, and the smallpox vaccine cost 1-2 cents per dose.

Country ownership

Independent actions by countries to test many approaches simultaneously across different sociocultural and epidemiological contexts was an important success factor for other disease control programs. For example, the global smallpox eradication effort was built on leadership and support from WHO, but in practice was a collection of individual national programs attempting to solve their own problems through their own systems and in their own ways [12]. Experimental learning rather than formalized programming was encouraged, and this facilitated the identification of local solutions. This is somewhat different from the way donor financing for several malaria programs currently operate.

Implications for Malaria: Malaria endemic countries need to be encouraged to test various context-appropriate strategies while encouraging adoption of proven best practices. Although current malaria guidance embraces the belief that adapting and tailoring interventions to the local context is important for elimination success [13], the reality often does not match the rhetoric. Resources are deployed in ways that result in the recipient countries not having full autonomy over malaria policy and resource allocation; therefore, they cannot make decisions on how best to implement malaria prevention, diagnosis, and treatment in their own countries [7]. The existence of multiple players in malaria at the global level also contributes to competition for leadership, influence, and resources at the national level [14]. The importance of country ownership was reinforced in key informant interviews. For example, Zambia takes ownership, makes decisions, and provides evidence to the global entity to change policy. One of the reasons given for this is because of the maturity and strength of Zambia's NMEP, which enables its staff to make decisions. This is emphasized in the country's creation of a technical working group formed to avoid clashes in governance that may occur between partners at the global and national level. In situations where the technical working group's decisions are challenged or pushed back by partners at the global

level, the malaria manager makes the final decisions.

National program structure and management

Successful disease programs have strong management, integration in the national health system, and buy-in by top political decision makers. Successful execution of the smallpox program, for example, was said to consist of 10% technical skill and 90% organization and leadership skills [15], with its approach to certain interventions such as contact tracing often described as ‘military-like’. Smallpox eradication had problem-solving staff with reputations for adaptability, imagination, and hard work; they served as catalysts, rather than controllers, and strong managers and operations officers were hired to ensure execution. Successful programs also integrated their control structures within the country’s health systems in ways that strengthened national systems. This was the case for the smallpox eradication and the African Program for Onchocerciasis Control (APOC) programs. The polio eradication initiative was also used to strengthen national immunization programs in Latin America. Some successful disease control programs (including COVID-19 responses) have leveraged proximity to top political leaders effectively. Most National Malaria programs are currently housed within departments in the MoH, which constrains their ability to galvanize political support and multisectoral action.

Implications for Malaria: The management and leadership skills of National Program Managers need to be strengthened for successful program implementation. NMCP/NMEP managers need to have the right level of skills and visibility to be effective, including engaging with communities, problem solving, and creating context-appropriate solutions to problems that may arise. When asked about governance challenges during the key informant interviews, providing program leaders with management training was highlighted as an area where malaria program managers would benefit. As the Zambia NMEP manager said, “Managers don’t have enough training on leadership/management, and most are put in new positions based on their past experience. Malaria programs don’t have structures and so it is difficult to run when you don’t understand it understand who you report to, who your peers are or even know about malaria partners or the sort of relationship. So as manager, you try to figure it out once you get in.”

Community engagement

Community engagement and participation were critical for successful global disease programs. Top-down approaches alone, have limited effectiveness. Community participation with the smallpox program was considered to be strong [6]. Gaining the support of the community leaders was an important step towards community acceptance. Polio and smallpox efforts in Nigeria, for example, were successful because community/religious leaders trusted by communities were enlisted and engaged as part of the program [16]. For the APOC program, extensive community engagement and involvement in the implementation of Community-Directed Treatment with Mectizan (ComDT) contributed to its success. Engaging the community should not be limited to a specific disease program but involve building capabilities to provide broader health services. In the smallpox eradication program, there were combined mobilization efforts with other community initiatives (e.g., neonatal care). For the polio eradication program, the training the community volunteers received included training on disease surveillance and cold chain management.

Implications for Malaria: Malaria programs should engage communities and community leaders in ways that complement existing top-down approaches such as campaigns to distribute nets. Communities need to understand and own the issues and the interventions. For instance, do communities understand and own vector control mechanisms to destroy breeding sites in their environment? Do communities also understand and own the goal of malaria elimination? There should also be continuous communication

and collaboration with communities on malaria elimination programs.

Data use for engagement and decision-making

The availability of real-time, high-quality data for surveillance and monitoring was a critical success factor for the disease eradication programs. In the polio eradication program, over 20,000 facilities were included in the surveillance network, and in the APOC program, epidemiological mapping techniques were used to map 12,000 miles of rivers for the program. The COVID-19 response also effectively leveraged technology and data. Real time epidemiological data was used to efficiently align program strategy and deploy interventions. The smallpox program used surveillance data to seek out cases and then vaccination efforts were concentrated to those in their proximity and their contacts [17]. The surveillance strategy helped focus vaccination on the places where it was most likely needed, rather than laboring to achieve implausibly perfect coverage everywhere. This contributed to eradication’s ultimate success [18,19]. **Data was also used effectively to engage the population and various stakeholder groups in a simple and compelling manner.** For instance, the COVID response programs in different countries used simple dashboards that were updated daily, to inform and engage citizens on the evolution of the pandemic, the progress made, and risks.

Implications for Malaria: Malaria programs need to provide more frequent high quality malaria data at the national, state and community levels, and to use data to engage stakeholders and target interventions. Malaria programs should focus more on impacts and outcomes, including more frequent measurements of prevalence and incidence (which are directly linked to eradication) and perhaps less on outputs and activities conducted. Such data can be used in better engagement with stakeholders and communities on the status of eradication efforts. Unfortunately, the malaria indicator survey (MIS) is carried out every five years, which is not frequent enough. Performance indicators from programs could also be better targeted, for instance not just on number of nets delivered, but on whether nets are delivered to those most at risk, or if the nets achieve the desired outcome of reductions in malaria prevalence/incidence in the target communities. Questions the global malaria community may need to reflect on include: Can malaria data be used and presented in more engaging ways? To what extent should malaria programs rely heavily on modelling estimates to make decisions? Can we improve surveillance to include genomic data and other high-quality data in real time or with greater frequency?

Multisectoral collaboration

Lessons learned from diseases like Covid-19 show multisectoral collaboration is critical to control the spread of infectious diseases as well as mitigate its impact on populations. The relevant sectors span healthcare, education, research & development, tourism, and others. Most national COVID-19 responses have been multisectoral in nature, involving coordination of several public sector line ministries as well as the private sector. Pharmaceutical companies have been in public-private collaboration with governments, regulatory agencies, research institutions and international organizations. Other successful programs also involved the private sector, for example, Merck was highly involved in both the APOC and onchocerciasis control programs (OCP) [20].

Implications for Malaria: Successful malaria elimination programs also involved multisectoral collaboration in their malaria strategic plan. For example, Zambia works with multiple sectors for malaria elimination, such as the mining industry and civil society. In fact, one of the respondents interviewed summarized this best, stating that: “Zambia created the ‘end malaria council’ to deepen its multisectoral approach. We began to engage politically and got the support of the President. We have a strategy which is documented, and we work with the manufacturing industry, agriculture, trade, civil society, mining. We

also have global partners like the Roll Back Malaria who sit in our meetings and give technical advice. We also work with the banking sector, chamber of commerce and industry to bring in the private sector, religion. We also have provincial level councils, so the structure is built.”

Technology and innovation

Innovation played a crucial role in the success of some global programs by transforming the options available for interventions and thereby accelerating disease eradication. In the smallpox program, two innovations were pivotal. One was an inexpensive bifurcated needle that was easy to use and required only a quarter of the vaccine dose normally required. The second innovation was freeze-dried vaccines that provided fully potent heat-stable vaccines that could be stored for months. The innovation of the discovery of the drug Mectizan was at the heart of the APOC program [20]. In the fight against COVID-19, the rapid, unprecedented development and deployment of vaccines has been the game-changer in the global fight against the pandemic.

Implications for Malaria: Innovations in the available interventions may accelerate attainment of malaria eradication goals. For example, an effective vaccine could be a game-changer – a new malaria vaccine showed about 77 percent efficacy in a small clinical trial among children in Burkina Faso, shows some promise in this regard. A single-dose antimalarial drug could also radically improve treatment options.

Conclusion

There is no ‘ideal program’ that can be directly compared to the malaria eradication program, as each has contextual issues, success factors and challenges. However, some governance lessons from other programs could provide additional ideas and inspiration for a more robust push towards malaria eradication. Some of these learnings are as follows: Firstly, the role of the sponsor or global champion is important; although the malaria program has many champions, it would benefit from having a global leader who makes this his/her priority and legacy. Secondly, national programs (and the international institutions that support them) must embrace flexibility and efficiency in execution and must be adaptive in their approach at all levels including the way stakeholders such as political leaders, other sectors, and the community are engaged. Thirdly, successful programs highlight extensive community engagement and involvement in the implementation of interventions, including behavioral change modifications. Fourthly, there is an opportunity to rethink the type of data being collected, its frequency, and its use in engaging stakeholders. Lastly, whereas other programs have clear mandates to eradicate the diseases, resulting in a focused, almost binary approach to measuring success – eradicated or not – success for the malaria program seems to be more complex, with eradication, elimination and control as parallel, simultaneous goals. This may be pragmatic at a national level, but may not have the same political resonance as a clear, single focus on global eradication.

Appendix I

Table 1: A conceptual framework of factors associated with success of Smallpox, Polio, and Onchocerciasis and COVID-19 disease programs

Theme	Smallpox (Worldwide)	Polio (Latin America, The Caribbean, and Nigeria)	Onchocerciasis (Sub Saharan Africa)	COVID-19 Pandemic (Global)	Implications for the global malaria eradication program
International Support and Coordination	<ul style="list-style-type: none"> - The Soviet Union played a key role in initiating the eradication program in 1958 through its deputy minister of health - Over 1.5 billion doses of vaccine produced in the Soviet Union for mass vaccination in 45 countries over 20 years of the smallpox eradication program. -Strong Global advocacy from US Govt -Engaging national leadership at World Health Assembly 	<ul style="list-style-type: none"> -Strong international advocacy from US President Roosevelt. In 1938, created the March of Dimes -Latin America and Caribbean regional coordinated effort with leadership from PAHO Interagency Coordinating Committee (ICC) for LAC involving UNICEF, IDB, PAHO, USAID, Rotary International, and the Canadian Public Health Association, Polio in Nigeria had support from WHO, the US CDC, UNICEF, the Bill & Melinda Gates Foundation, and Rotary International. 	<ul style="list-style-type: none"> -Strong international advocacy from World Bank president, McNamara after his 1972 visit to Africa -Development of the global Onchocerciasis Control Program (OCP) in 1974 -Development of the African Program for Onchocerciasis Control (APOC) in 1995. involved agencies (WB, FAO, UNDP, WHO), governments of 19 developing countries, 21 bilateral and multilateral donors, > 30 NGOs, Merck, > 100,000 rural African communities 	<ul style="list-style-type: none"> -WHO and GAVI leadership and collaboration with regional disease control entities such as the Africa CDC, US CDC, GAVI, CEPI for the COVAX initiative -Access to COVID-19 Tools Accelerator (ACT-A) to promote equal access to tests, treatments and vaccines and support health systems globally *This global leadership was however, attenuated by the rise in nationalism. 	<ul style="list-style-type: none"> Significant global advocacy for malaria, Would malaria benefit from a global political champion? A person? A country? Or is the multilateral financing enough? Would the focus on elimination or eradication resonate better politically than more nuanced approaches e.g., control?

Financing	<ul style="list-style-type: none"> - In 1966 the World Health Assembly (WHA) approved \$2.4 million annually to support a 10-year smallpox eradication plan - Technical and financial support from the US Govt. \$35 million over a 5-year period, approved by President Johnson as a special US contribution to a United Nations initiative called 'International Cooperation Year'. -Cost between 1967-1979 was US\$23 million. In total, donors provided US\$98 million, while US\$200 million came from the endemic countries. 	<ul style="list-style-type: none"> -International financial commitment from PAHO, UNICEF, USAID, IDB, Rotary International, Canadian Public Health Association) contributed \$110 million between 1987 and 1991. -Increased domestic resource mobilization. The first five years of the polio campaign cost \$120 million: \$74 million from national sources and \$46 million from international donors 	<ul style="list-style-type: none"> -Merck's long-term donation of Mectizan -Financial support mobilized through World Bank and donor partners. -Commitments from 27 donors during the 28-year OCP project totaled \$600 million. -APOC bears a total price tag of \$180 million. Donor funding accounts for 75%, and African governments and NGOs the remaining 25% - Yearly cost of less than \$1 per person protected 	<ul style="list-style-type: none"> - Unprecedented resource mobilization globally (~\$11.7 Trillion) for pandemic control and impact mitigation through economic stimulus funding - The establishment of the COVAX facility - World Bank approved \$12 billion for developing countries to finance the purchase and distribution of COVID-19 vaccines, tests, and treatments for their citizens -A US\$2 billion UN coordinated global humanitarian response plan 	<p>Substantial existing financing through multilaterals and bilateral agencies</p> <p>What is being funded? Is there similar funding for other interventions? Innovation?</p> <p>Is there scope for more domestic financing in the face of economic constraints from the covid pandemic?</p>
Country ownership	<ul style="list-style-type: none"> -Identified politically connected domestic champions -National healthcare workforce mobilization at all levels. -Embraced independent actions by countries to test approaches across 	<ul style="list-style-type: none"> -National government commitment. -In the first 5-year plans from 1987 to 1991, 80% of the \$544.8 million budget for EPI was derived from national resources. This figure 	<ul style="list-style-type: none"> -National Ministries of health coordination in APOC model (unlike vertical design of OCP). -APOC pioneered Community-Directed Treatment with Mectizan (ComDT), that was owned and 	<ul style="list-style-type: none"> - Countries were in charge of their national response, although there was extensive exchange of knowledge across countries. - Response largely led by local health officials and 	<p>Do the countries really own their strategies? Several countries have national malaria programs. have these evolved into government-funded, rapidly</p>

	different sociocultural and epidemiological contexts	climbed to 90% in the second 5-year plan. -National vaccine day campaigns introduced and implemented -Establishment of "Operation Mop-Up" Nigeria created a presidential task force to lead the country's response to the eradication of polio	driven by the countries	organizations. External TA providers largely played supporting roles	responsive programs?
National Program structure and management	- 'Military-like' approach to contact tracing -National Program leader assignment -Smallpox programs were integrated with health systems -Experimental learning facilitated identification of local solutions -Culture of problem-solving among staff with reputations for adaptability	-PAHO's regional polio eradication campaign complemented routine immunization efforts -National ICC set up and replicated in-country -Utilized the polio elimination strategy to strengthen the national immunization programs through complete integration with the Expanded Program on Immunization (EPI) Nigeria's Ministry of Health created Emergency Operations Centres (EOCs) to focus on the highest-priority interventions, improve coordination, and to	-APOC was not implemented as a vertical program, but integrated within the Health System - The focus was at the community level and it was the community and community leaders that drove most of the implementation.	-National programs headed by a high-level program leader, often reporting to the President, e.g., Anthony Fauci in the US; Supra-ministerial or ministerial level officials, Matt Hancock in the U.K.	Most NMEP programs are housed in a unit within the ministry of health. For instance, in Nigeria, it is a program, that reports to the Director of Public Health, which reports to the permanent secretary which reports to the minister of health which reports to the president. Hence, not that much visibility or priority given their position. The NMEP program manager needs more visibility!

		manage the program's overall performance.			
Community support / Community engagement	<ul style="list-style-type: none"> -Large scale community mobilization through volunteers -Community leaders' support -Developed a network of agents who conducted active case detection activities -Combined mobilization efforts with other community initiatives (neonatal care, census taking, market days) 	<ul style="list-style-type: none"> -Community-driven, house-to-house vaccination campaigns -Thousands of community healthcare workers were trained on tasks including surveillance, and cold chain management and mobilized across the country - Nigeria's Polio program addressed the challenges of communication, social mobilization, and noncompliance. Supported traditional, religious, and opinion leaders, to overcome vaccination misinformation. 	<ul style="list-style-type: none"> -Extensive community engagement and involvement in the implementation of Community-Directed Treatment with Mectizan (ComDT) -The communities selected the community-directed distributor, and the distribution efforts were adapted to the local culture and conditions. - Community volunteers received training and supervision from the national public health systems and from the program's NGO partners. 	<ul style="list-style-type: none"> -Engaging communities in the maintenance of pandemic prevention guidelines e.g., social distancing compliance, identification of cases - A significant part of the response has been top-down, given the nature of the pandemic - Successful behavior change modification interventions including hand sanitizing and mask wearing. 	<p>A lot of interventions are top-down, e.g., campaigns to distribute nets, testing and treatment programs (albeit where access is limited).</p> <p>Do communities own this? Particularly vector control mechanisms to destroy breeding sites, environment.</p> <p>Do communities also understand the importance of malaria elimination? Do they see malaria as a problem?</p>

<p>Use of data for engagement and decision making</p>	<p>-Case finding intensified during the period of lowest seasonal incidence -Integrated reporting from health facilities and active surveillance. In India, surveillance augmented to focus on routine, repetitive active searches for cases. (90% of houses every two months.) -Shift from national mass vaccination to surveillance and focused vaccination in areas where smallpox was observed</p>	<p>-Establishment of disease surveillance system Established a surveillance network of about 22000 health facilities and labs Alignment of indicators to track including suspected cases and incentivizing their reporting (\$100/case). Nigeria’s national EOC used a war room approach where the walls were covered with regularly updated wild poliovirus maps, data and analysis on polio cases, and polio immunity coverage in the country’s 11 high-risk states. The room used digital screens to depict up-to-date polio-performance indicators as well as videoconferences with state EOCs and external experts.</p>	<p>-Detailed geospatial mapping of 12,000 miles of rivers to provide up-to-date information -Detailed epidemiological mapping of the disease that aided surveillance. Operational research budget built into the program</p>	<p>-Regular simple presentation of data in a compelling and engaging manner -Use of platforms that increased access to real time sequencing data which contributed to rapid diagnostics development e.g., virological.org -Real time decision-making informed by data</p>	<p>Beyond MIS surveys (every 5 years) & World Malaria Report (modelled data). Could malaria data be used and presented in more engaging ways? Can we improve surveillance to include genomic and other high-quality data? Do we need systems/ platforms that provide real-time data? And do we need more frequent surveys e.g., yearly as opposed to every 5 years?</p>
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Technology and Innovation	<ul style="list-style-type: none"> - Invention and supply of the bifurcated needle: inexpensive, easy to use and required only a quarter of the vaccine dose normally required. - Rapid Training of vaccinators (took 15 min) and they could vaccinate 500/day. -Freeze-dried vaccines: Providing a fully potent, heat-stable vaccine which cost 1 or 2 cents a dose 	<ul style="list-style-type: none"> -Development of the inactivated Vaccine -Development of the Oral Polio Vaccine and its effective deployment in Chiapas, Mexico, served as a model for large scale immunization -Computerization of the surveillance system 	<ul style="list-style-type: none"> -Helicopter-facilitated insecticide use -Discovery of Mectizan which relieves the agonizing itching of the infection and halts progression toward blindness. 	<ul style="list-style-type: none"> -Rapid development and deployment of vaccines due to fast track of regulatory approval process e.g., European Medicines Agency (EMA). -Rapid rollout of tests -Use of technology to track and trace 	<ul style="list-style-type: none"> - Perhaps if there was an improvement in the interventions? E.g., A vaccine? Single dose antimalarial drug? Newer approaches to treatment and prevention? Would elimination be more attainable? - Innovative financing mechanisms have not yet yielded the desired results.
Multisectoral Collaboration	<ul style="list-style-type: none"> -Engaged the private sector -UNICEF provided commercial-sized freeze-drying machines 	<ul style="list-style-type: none"> -Establishment of the Interagency Coordinating Committee working across sectors 	<ul style="list-style-type: none"> - Long-term public-private partnerships - The Private Sector role in the success. Merck (and the Carter Center) showed resilience in trying to engage public sector (WHO, USAID). 	<ul style="list-style-type: none"> - Multisectoral national responses involving transport, security, education sectors -Private sector (/pharma) collaborating with regulatory agencies e.g., European Medicines Agency (EMA). 	<ul style="list-style-type: none"> - Private sector is engaged, however, not always for purely altruistic reasons. - How effectively can we bring the private sector to better partner with the government beyond CSR? - Which sectors should be brought to the table? Environment? Education? Water and Sanitation?

					Mining? Agriculture?
Selected Referen ces	<p>CASE 1: Eradicating smallpox. https://www.cgdev.org/page/case-1-eradicating-smallpox Henderson DA, Klepac P. 2013 Lessons from the eradication of smallpox: an interview with D. A. Henderson. Phil Trans R Soc B 368: 20130113. http://dx.doi.org/10.1098/rstb.2013.0113 Shchelkunova GA, Shchelkunov SN. 40 Years without Smallpox. Acta Naturae. 2017 Oct-Dec;9(4):4-12. PMID: 29340212; PMCID: PMC5762823.</p>	<p>CASE 5: Eliminating polio in Latin America and the Caribbean. (n.d.). https://www.cgdev.org/page/case-5-eliminating-polio-latin-america-and-caribbean Henderson DA, Klepac P. 2013 Lessons from the eradication of smallpox: an interview with D. A. Henderson. Phil Trans R Soc B 368: 20130113. http://dx.doi.org/10.1098/rstb.2013.0113 https://www.mckinsey.com/industries/healthcare-systems-and-services/our-insights/eradicating-polio-in-nigeria#</p>	<p>CASE 7: Controlling onchocerciasis in sub-Saharan Africa. (n.d.). Retrieved from https://www.cgdev.org/page/case-7-controlling-onchocerciasis-sub-saharan-africa</p>	<p>https://www.who.int/initiatives/act-accelerator www.gavi.org https://virological.org/ www.cdc.gov https://www.businesstoday.in/current/world/global-cost-of-coronavirus-this-is-how-much-covid19-pandemic-has-cost-the-world-economy/story/425100.html</p>	

Appendix II

Synopsis of successful disease programs: Global smallpox eradication, polio eradication in Latin America and the Caribbean, onchocerciasis control in Sub-Saharan Africa, and the ongoing COVID-19 response globally.

Case Studies

1) Smallpox Eradication

The Intensified Smallpox Eradication Programme of 1966–1977 was a global effort to conduct mass vaccination in combination with surveillance to detect cases and control outbreaks [21] and as a result, Smallpox is the only infectious disease of humans to have been eradicated globally. The smallpox program survived and was successful in part because it had international support and strong backing from the major powers of the era, the United States and the Soviet Union [22]. Smallpox’s profile within the WHO was maintained, and countries were encouraged to contribute funding and resources. The annual meeting of the WHO assembly was an important opportunity to keep eradication on the minds of health ministers [23] and surveillance reports with summaries of progress and problems was used to maintain the public profile of the disease.

International coordination was considered important to avoid “ping-pong smallpox” [24] in which infections would be continually reintroduced from country to country. The WHO provided a dedicated smallpox funding in 1967 which incentivized countries to scale up their national programs [25]. The smallpox eradication effort was successful also because it was a collection of individual national programs, each contextualizing solutions to their own [26], rather than a top-down, centrally managed approach [27]. Smallpox programs relied upon having a stable, reliable, effective vaccine [28] and the WHO provided an analogous quality control and assurance function. The WHO also provided technical and operational support to national programs and encouraged research and innovation through the development of a heat-resistant vaccine. Which was the single most impact factor in global success. The Smallpox program highlighted the importance of problem-oriented research which enabled resolution of unforeseen challenges [29].

Some factors were important for elimination of smallpox. First, smallpox programs were integrated with basic health systems, which allowed case management and surveillance to occur on a routine basis [22]. Second, smallpox programs had staff who were creative problem-solvers [27], and who could figure out how to overcome any obstacle that arose, thereby adapting solutions challenges faced [25]. Third, the smallpox program highlighted the importance of strong management in all aspects of the program [30].

2) Polio Eradication in Latin America and the Caribbean Success Factors

Successfully eradicating Polio in Latin America and the Caribbean was a global, collaborative feat. Some critical factors for success were international support, the development of the inactivated polio vaccine (IPV), and community health worker mobilization [31, 32]. The program received financial and logistical support from partners such as the WHO, UNICEF, CDC, the Task Force for Global Health, Rotary International, and Gavi [32], which facilitated advocacy and social mobilization. International collaboration spearheaded by the Pan American Health Organization (PAHO)’s regional polio eradication campaign complemented routine immunization efforts by utilizing the polio elimination strategy to strengthen the national immunization programs through complete integration with the Expanded Program on Immunization (EPI) [31,32]. PAHO also developed the PAHO IPV Introduction Practical Guide and expanded on resources developed by the Immunization Management Group (IMG) of the GPEI to support countries in introducing the IPV vaccine [32]. Health worker mobilization played an impactful

role in providing human resources that went house-to-house in communities with existing polio cases or had low coverage [31]. Finally, an emphasis was placed on surveillance to track outbreaks, facilitated by the surveillance system's computerization [31].

3) Onchocerciasis Control in Sub-Saharan Africa Success Factors

In 1995, African Programme for Onchocerciasis Control (APOC) was established to advance the progress of the Onchocerciasis Control Program (OCP) started in 1974, which addressed disease vector control through environmentally safe Aerial insecticide use weekly [20]. APOC, founded to control Onchocerciasis in 19 central, east, and southern African countries, successfully partnered with local communities and international organizations to achieve a broad, sustained impact. Some critical facilitators of this process were the regional coordination necessary to achieve vector control, financial support mobilized through the World Bank and the River Blindness Foundation, and Community-Directed Treatment with Mectizan (ComDT) approach implementation [20]. Through a comprehensive partnership, APOC and OCP successfully distributed Ivermectin (Mectizan) donated by Merck & Co., Inc., which prevents and cures the disease with a single dose to over 45 million people in Sub-Saharan Africa. The ease of this intervention coupled with Merck's long-term donation and efficient vector control helped ensure the program's sustainability. Operational research-based decision making [20] to explore developing problems ensured context-specific solutions.

4) Ongoing global COVID-19 response

In late December 2019, it was announced that there were some pneumonia cases of unknown etiology (PUE) in Wuhan City, Hubei Province, China, and the causative agent was quickly revealed to be a novel coronavirus (later named SARS-CoV-2). The incubation time was quickly assessed to be 3-7 days by the China CDC team. The team also assessed the major transmission routes of the virus, being respiratory and close contacts through droplets. Based on epidemiological assessment, control measures were implemented and the epidemic in Wuhan was under control within 100 days [33]

Countries such as New Zealand, Germany, and Taiwan, had swift public health measures put in place to control the outbreak and maintain low numbers. New Zealand implemented the most stringent lockdown of any country when they had only 102 COVID-19 cases and no deaths. The politicians trusted the scientists and the prime minister used powerful empathetic communication to engage the public with the response. After 7 weeks, New Zealand emerged virus-free. The country protected its most vulnerable populations and achieved the lowest COVID-19 mortality rate in the OECD. Other measures included early decisive lockdown measures; implementation of surveillance systems; use of masks; targeted testing strategies; and the use of information technology [34].

Africa showed unified leadership. The first case of the coronavirus was confirmed on February 14, 2020, in Egypt. One week later, on February 22, H.E. Moussa Faki Mahamat, the chairperson of the African Union Commission, convened an emergency meeting of ministers of health with all 55 member states in attendance. The meeting led to creation of the Africa Joint Continental Strategy for COVID-19 Outbreak. The coordination by the AU and member states led to the advancement of contact-tracing, surveillance, case management, and scaling up of testing across the continent. The alignment in vision helped build the capacity of member states to respond to COVID-19 through the Africa CDC. [35]

The factors that have been responsible for COVID-19 success include: (1) strong political will; (2) active case finding and quarantine of close contacts; (3) science-based guidelines for prevention, control, and treatment; (4) public compliance with mask-wearing, social distancing, and hand-washing; (5) public understanding and involvement (6) restricting public gathering and movement; (7) nucleic acid testing for a wider population once an outbreak was noticed; (8) Data sharing and accessibility; and (9) Rapid development and deployment of vaccines via fast tracked regulatory approval process [33, 34].

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“Financing Malaria,” by Ravi Rannan-Eliya

Note: This preprint is part of the “Rethinking Malaria in the Context of COVID-19” series. All of the manuscripts produced in this effort will be submitted for peer-review and published as a compendium. This preprint is being made available to enable a broader discussion around key challenges and solutions.

The “Rethinking Malaria in the Context of COVID–19” global engagement was constituted as a consultative process to ‘take stock’ and push beyond conventional thinking to question fundamental assumptions and approaches, with a focus on bold new ideas to achieve real-world progress. The process managed by three governance bodies comprising a Steering Committee, Working Group Co-Chairs and contributing authors, and an External Advisory Committee. For a listing of the "Rethinking Malaria" Working Group Co-Chairs and contributing authors and External Advisory Committee members, see Text A1.

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Supporting Information:

Text A1: "Rethinking Malaria in the Context of COVID-19" website.

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Abstract

The global push to accelerate progress on malaria control was made possible by a substantial increase in international financing. New financing mechanisms, notably the Global Fund to Fight AIDS, Tuberculosis and Malaria (GFATM) and the US President’s Malaria Initiative (PMI), played key roles. The recent slowdown in progress towards malaria elimination has been accompanied by a plateauing of international financing, leading naturally to concerns that financing may be a constraint to sustaining or accelerating progress. At the same time, there are concerns about the impact of the global financing architecture on the effectiveness of malaria control at the country level. Both sets of concerns have some basis, but the implications for action are not straightforward, and require consideration of issues such as accountability and voice, a greater emphasis on the more efficient use of resources and responding to what malaria-affected populations want rather than what funders want, and drawing lessons from countries, such as Sri Lanka, El Salvador, and China, that eliminated malaria at low cost.

Introduction

The global push to accelerate progress on malaria control was made possible by a substantial increase in international financing. New financing mechanisms—notably the Global Fund to Fight AIDS, Tuberculosis and Malaria (GFATM) and the US President’s Malaria Initiative (PMI)—played key roles. The recent slow-down in progress towards malaria elimination has been accompanied by a plateauing of international

financing, leading naturally to concerns that financing may be a constraint to sustaining or accelerating progress. At the same time, there are concerns about the impact of the global financing architecture on the effectiveness of malaria control at the country level. Both sets of concerns have some basis, but the implications for action are not straightforward and require consideration of issues such as accountability and voice.

International financing—Trends and prospects

The push to reinvigorate malaria control has focused on expanding the use of established and new preventive, diagnostic, and treatment interventions. Advocacy was successful in changing GFATM's originally proposed remit to expand and include malaria, and later in raising new US financing for these interventions, channeled through PMI. These and other similar initiatives resulted in an exceptionally large increase (\$2 billion) in international financing to almost \$3 billion per year, mostly provided by the USA, UK, and France, but funding has been static since 2010 [1].

The lack of increase in international financing in recent years is not a failure. The ramp-up in spending reflected the success of the malaria community in capturing the imagination of governments long enough to create new institutional commitments that could sustain funding after their initial enthusiasm had inevitably passed. In the current global environment, however, there is little realistic likelihood of something similar happening soon.

First, high-income countries and other global funders are likely to remain focused on COVID-19 through 2024 and will have little capacity to increase official development assistance (ODA). The pandemic has done huge damage to the balance sheets of leading economies, with most nations increasing their public debt substantially to sustain economic activity. As the world recovers from the pandemic, governments must increase taxes and constrain spending to pay down this debt, making it politically harder to increase ODA spending. Evidence of this can be seen in the UK government's proposal to reduce its ODA spending to 0.5% of national income, ditching a statutory obligation to keep it at 0.7% of national income.

Second, the recent fashion of using global health security[2-4] as the rationale to finance malaria is unlikely to be helpful. Although a case could be made that ODA for infectious disease control could pay for itself in terms of economic returns for high income countries, such economic cost-benefit arguments are rarely persuasive, as demonstrated by the difficulties in persuading high income economies to provide greater support for global COVID-19 vaccination despite ample evidence of very high economic returns from doing so [5]. The case for malaria is even weaker given that high income nations face little direct risk of malaria, and the limited integration of high burden countries in Africa into global production chains. The fact that malaria affects mostly people in developing countries not only argues against using a health security rationale, which favors the interests of people in rich countries, but is also an argument for using the concept of human security instead, since the human security approach puts the stress on the security, welfare and self-identified needs of the populations most affected by malaria [6].

The one major opportunity for diversifying and increasing international malaria funding is probably China, whose ODA footprint will grow as it emerges as the largest economy in the next decade. Although China is currently a minor player in the malaria funding space, malaria has been a top priority in its health ODA to Africa [7, 8], the country brings its own recent experience of achieving malaria elimination [9], and the country is a major producer of diagnostic and therapeutic interventions. Malaria elimination in Asia and Africa also aligns well with China's Belt and Road Initiative, a key part of its ODA strategy.

However, two barriers constrain China’s potential contribution. The first is that China’s ODA program is very much a work in progress [10]. Its official ODA agency, CIDCA, was only established in 2018 and remains small, making effective engagement difficult from both sides. China also lacks a deep ecosystem of contractors, research institutions and thinktanks, NGOs and even development experts that would help inform and implement a deep engagement with the global malaria community as well as effectively translate its own experience. This will not change rapidly, but it suggests a role for enlightened funders, development partners and academic institutions to engage in building and mentoring China’s capacity to do so. The second barrier is one of voice. The perception that many multilateral entities remain dominated by Western nations and do not provide adequate representation to emerging economies like China is real and affects multilateral institutions ranging from the IMF and World Bank to COVAX [11], and it may be an issue for GFATM and RBM. Effective inclusion of China may require decolonization of these institutions too [12], which may be challenging for stakeholders opposed to engagement and or sharing influence [13].

Domestic financing—Trends and prospects

Despite the focus on international financing, the reality is that domestic financing for malaria, from government and private sources, has always been far greater. The financial contribution of developing countries is systematically under-counted because most efforts to track malaria financing only consider programmatic spending by malaria control programs, and do not consider and count the much larger spending by general health services in the routine treatment of malaria and suspected malaria cases, which also includes private expenditures by households. This stems from the difficulty of reliably assessing spending by disease, which even OECD economies have difficulty doing on a regular basis. A detailed 2015 study found that 5-10% of all inpatient and outpatient episodes in the Solomon Islands were due to malaria and that malaria cost more than the average treatment episode [14], implying that 7–15% of the country’s routine medical spending was for the management of malaria, substantially greater than the spending reported by the malaria control program [1]. Similarly, many small-scale studies from Nigeria [15, 16], a high burden country in West Africa, suggest that 10–40% of outpatient and inpatient episodes in the country are due to malaria and that malaria treatment accounts for a significant share of household budgets, making malaria probably the leading cause of healthcare spending in the country.

Since most malaria spending is by the affected countries themselves, and since many developing economies have been growing faster than developed economies in recent years, some have suggested that the burden of increased financing could be shifted more to the affected countries themselves. However, this ignores a growing mismatch between where the remaining malaria burden is and the economic capacity of countries. Malaria decline has been greatest in the developing regions with highest economic growth, principally South-East and South Asia, leaving the bulk of the malaria challenge in Africa where countries are least able to leverage domestic financing owing to lower incomes, lower rates of economic growth and less fiscal capacity. Although these countries can theoretically mobilize greater financing through increased taxation and increased allocation of government budgets to health (including malaria), it is instructive to consider the impact of the 2001 Abuja Declaration, when African Union governments committed to allocate 15% of government budgets to health. In the subsequent two decades, very few African governments have met its target (only two in 2018), and by 2015 most had reduced allocations [17]. What this tells us is that official commitments or exhortations to increase spending are unlikely to work in the more constrained post-COVID-19 period, without a persuasive political economy rationale. That will probably not arise from arguments that controlling malaria improves health and economic productivity, which are correct, but are clearly insufficient.

These constraints on increased domestic and international funding for malaria should lead us to be realistic about prospects for increased financing in the next few years. Although these cannot be completely discounted, we should give more attention to what can be done if funding does not increase. Here the answer is obvious—we need to do more with what we have or even more with less. From a financing perspective, the focus should be on increasing the efficiency and effectiveness of financing—both domestic and international—in controlling and reducing malaria transmission, and especially in the high burden countries, many of which are in Africa.

Does international financing and the global financing architecture impair progress?

Although international funding is the smaller part of overall malaria financing, it is still important, because of how it influences malaria control policy and its role in the financing of key commodities in many countries. If malaria financing is to be made more effective, is there potential for improving the impact of international funding? Here, there are at least four sets of issues.

The first is that international financing of malaria imposes significant transaction costs on recipient countries, a form of inefficiency that reduces the value of each donor dollar, although global pooling of commodity purchases partly offsets this. One part of this stems from the existence of several substantial funders, *i.e.*, GFATM, PMI, BMGF (Bill and Melinda Gates Foundation) and other bilateral ODA agencies, which fragments the funding flows to and within countries, making it more difficult and burdensome for national programs to coordinate and manage funding and control activities. Key informants at country level frequently report the problems they face in managing multiple funders, as well as the asymmetry in power relations that arise that make it more difficult to effectively manage international funders.

These transaction costs also arise from the skewed incentives that international funding can create, either for governments to favor some activities over others, or the incentives created for individuals, for example when local officials or experts are paid more to work for donor funded programs. These problems are real and significant, but they are not unique or specific to malaria, affecting the whole range of ODA-funded activities, although more of an issue in the relatively well-funded and popular health sector than in others.

The transaction costs that ODA imposes on countries have been acknowledged for at least two decades and have led to several efforts to streamline ODA flows to countries, as well as to reduce the burden and perverse incentives within countries. The 2005 Paris Declaration on Aid Effectiveness, for example, called on countries to ensure that donor efforts complement each other, and for donors to concentrate their aid and expertise where it can bring the biggest benefits. Whilst all major funders have signed up to the Paris Declaration and made various commitments to pursue best practices, more can always be done. Within the malaria space, a forum to discuss these problems and for key funders to do more to find ways of improving practices, learning from what we know can work, could be helpful. This may well be an area that the World Bank or WHO could lead on given the obvious benefits.

Realistically, however, ODA financing will always be associated with its own transaction costs. So, countries must decide for themselves whether the net benefits of taking ODA funding outweigh the transaction costs, and if they can do more, learning from other countries, to better manage the terms of their interactions with external malaria funders. The latter might mean, for example, being more assertive that donors should divide their support by type of intervention as opposed to by subnational region (which appears to be particularly problematic), and that donors provide more core support to national program

management and coordination activities. Here again, support by development partners for learning about lessons in strengthening country management and for dissemination of best practices to country counterparts could help.

The second set of issues related to international financing concerns the governance of the global funding architecture and perceptions that current arrangements give too much influence to some actors, particularly GFATM and the United States, and too little to others, specifically WHO. The WHO concerns are understandable. It is rightly the lead agency for directing the global malaria control effort, but its chronic lack of core funding means that it has less ability to steer policy and coordinate actual implementation. Instead, the bulk of international financing flows through GFATM. And changes at RBM, which including shifting its Geneva offices out of WHO headquarters, have reduced the voice that WHO has in its governance and the closeness of their day-to-day relationship. However, it is unclear how these concerns can be completely resolved, given that the substantial funding that governments give to GFATM for malaria probably would not flow to WHO or even to malaria control if GFATM didn't exist. The trade-off involved in securing additional funding commitments for malaria is that the relevant funders expect more accountability and influence, which the WHO cannot provide.

This emphasis on accountability not only works at the level of GFATM decision-making, but also goes through to the accountability that GFATM imposes on beneficiary countries when spending money. Although this generates criticism around the constraints and burden it creates for countries, the increased accountability that countries have faced when spending money has almost certainly been positive and helped accelerate and keep on track funded malaria control activities. It should also be said that the level of accountability and pressure that GFATM has introduced is not something that the WHO could have done well. Given the inherent trade-offs between more funding and accountability and influence, the best option would be for major funders to provide more direct funding to WHO to strengthen its core steering, coordination, and country technical support functions, and for RBM to strengthen its relationship with WHO.

The third set of issues related to international financing concerns whether the global financing architecture impairs the malaria elimination effort by shaping or altering what is done. This is different from the problem of transaction costs associated with international financing, which may increase the effective price of activities [a form of technical efficiency], but does not alter the mix of interventions [a matter of allocative efficiency]. One way this could happen is if global financing results in suboptimal allocation of investments across different interventions. In theory, this should not happen since all major funders support and align with the WHO global malaria strategy with its mix of targets and intervention approaches. However, in practice this may happen in three ways.

First, despite the consensus that strong program management and surveillance should be priorities for investment [18], these, especially management strengthening, have not been prioritized in international funding. This may be because strengthening management is seen as too hard or lacking effective solutions. Donors frequently shy away from the arduous process of strengthening institutional capacity in favor of quick fixes to get their immediate objectives done. Unfortunately, strengthening management capacity may be critical to achieving more with less, both globally and within national malaria control efforts. Sri Lanka and China are good examples of this, since both their successful malaria elimination efforts were done at low cost and with efficient use of resources by public sector managers. But their experience suggests that the problem of better management might be something that can only be tackled effectively by countries themselves taking ownership, since it is intimately related to the issue of local accountability. Nevertheless, international funders could do much more to learn from successes such as

Sri Lanka [19], and to support translation and South-South sharing of relevant lessons, as well as supporting long-term efforts to strengthen health management where countries themselves take the lead.

Second, international financing appears to favor commodities. Bilateral funders are ultimately accountable to their own politicians and taxpayers. This likely favors investment in commodities and other actions that can be visibly associated with impact and are easily accounted for. This is quite apparent when perusing the annual report by PMI to the US Congress, which focuses on such concrete indicators as bed nets and diagnostic tests distributed and child deaths prevented, as opposed to improvements in surveillance and management systems [20]. In a normative sense, this is not wrong—a key requisite for successful development should be to ensure that governments are accountable to their people for what they do with the people’s money [21]; but this excessive reliance on international funding could distort the accountability away from the people who suffer malaria to people in faraway lands who do not, with potentially negative impacts on malaria control.

Finally, a frequently expressed concern is that international financing undermines local ownership of malaria control. There is some truth to this, but it also depends on country motivation. Where countries are strongly committed to the goal, it is much less likely that international financing will damage or weaken local control. The real focus should be on how to ensure that countries have strong ownership that is resilient to the impact of international financing.

What could we do differently?

To accelerate malaria elimination progress in a scenario where increased international funding is unlikely, the critical question is: *What could we do differently?*

The “Rethinking Malaria Strategy in the Context of COVID–19” project is based on the premise that business as usual is not enough. It is beyond the scope of this paper to provide a proper answer to this question, but I will offer some thoughts that link to points raised in the preceding discussion about malaria financing and seek lessons from three national success stories. This draws on the experiences of Sri Lanka, China, and El Salvador [22]—three countries that succeeded in eliminating malaria at relatively low cost—whilst contrasting them with one high-burden African country, Nigeria.

Whilst acknowledging the differences in the epidemiology of malaria between regions, the most striking difference between these countries and the situation in much of Africa today is the role that their general health services and treatment played in controlling malaria. In all three countries, the population’s use of routine medical services was much higher and appears to have been associated with a much higher fraction of malaria or fever cases being seen by providers, usually earlier, and being treated. The Sri Lankan situation is clear. From the 1950s, rates of medical care use in Sri Lanka were exceptionally high, increasing from 2 to 7 doctor consultations per capita per year by the 2010s, when malaria was finally eliminated. This high rate of use of medical treatment included fever cases [23], meaning that the treatment of malaria played a significant role in the control of malaria transmission. China’s experience is similar, with an additional emphasis on mass drug administration, and in the later stages on detection and treatment of all cases [24, 25], whilst elimination in El Salvador was characterized by an aggressive treatment policy in which 95% of people receiving treatment did not have malaria with less emphasis on vector control and bed-nets [26]. This can be contrasted with the situation in sub-Saharan Africa where most health systems are weak, and many or most malaria cases never receive treatment [27]. Estimates suggest that in 2015 only 20% of symptomatic RDT-positive children under 5 years old in Africa received an ACT, with less than

40% taking any antimalarials in Nigeria [28]. Such differences in treatment coverage matter because early treatment of malaria cases, even if not always effective, can reduce transmission by as much as 95–99% in Africa [29], and is critical globally.

In short, a key challenge in eliminating malaria in many high burden countries is the weakness and low coverage of the overall health system and local health services, within which malaria control is embedded [4]. That weakness translates in too few malaria cases being treated early or at all, which makes it more difficult for other control interventions to reduce transmission sufficiently to achieve rapid control. Further, such weaknesses will matter more when transmission begins to fall.

This raises the question as to how Sri Lanka got people with malaria or fever to seek medical care so frequently. The answer lies not in what the malaria control program did, but in overall health policy. Since the 1930s, Sri Lanka pursued a strategy that prioritized universal access to medical care regardless of disease, which meant abolishing user fees, building as many healthcare facilities as possible to maximize geographical access, and empowering and training managers, who were always doctors, to constantly do more with less to stretch the limited public budget [19, 30]. Sri Lanka did not do these things because of advice from international funders (they often advised the opposite! [31]), but because its political economy—especially the election of all governments by universal suffrage from 1931—made its governments highly responsive to ordinary people. And critically although the initial expansion of healthcare in Sri Lanka was driven by the devastating impact of malaria on rural households, the people weren't so much interested in better malaria prevention, as in having immediate access on demand to a doctor or medicines when sick or a hospital bed when they needed nursing [30]. Indeed, although political pressures arising from malaria were critical in the expansion of Sri Lanka's health system from the late-1930s, once overall healthcare access was achieved, efforts to use malaria control as an issue of political mobilization were ineffective by the 1970s [32].

Economic analysis since the 1990s has shown that the approach that Sri Lanka took is key to increasing use of medical care in other developing countries, especially removing price barriers and minimizing physical distance to facilities [33]. Such policies are likely to be highly popular with people in many high-burden countries. For example, in Nigeria, where most people have low confidence in their health system, health was the most important issue for voters in 2019, and when asked which health promises were most attractive, 53% cited free or cheaper healthcare, followed by 11% for more healthcare facilities, with only 8% mentioning better malaria control [34]. Other data from Nigeria also show that simple improvements in local healthcare services can substantially increase support for politicians [35], whilst people will support higher taxes to pay for public services, with support greater for increasing taxes on the rich [36]. This last data point is intriguing as it indicates that a better approach to increasing health spending in Africa would be to frame it as an issue of domestic political self-interest instead of as an international obligation and demonstration of good behavior.

This raises the question as to why such public preferences in African countries, which would facilitate faster malaria elimination through strengthening health systems (and support raising taxes to pay for health), have not had the same impact as in Sri Lanka. Here I can only speculate. Perhaps one reason why politicians have not done what was presumably in their own interests has been the relative weakness (until recently) of electoral politics in these countries, information failures in the political market, plus the greater influence of external funders in setting health (and malaria) policies and their frequent failure to ground policy advice in terms of political rationality. An example of this is the recent BMGF malaria strategy recommendations for Nigeria. These focus on investments in specific malaria control interventions but are silent on changes to the broader health system such as reducing user fees and other

factors which are a significant barrier to treatment in Nigeria. Whilst that document stresses the importance of creating “political will,” it bases the rationale for action purely in terms of health impact, with no appeal to the political benefits of improving healthcare access and no consideration of the political calculations of local politicians [37].

Making financing work better requires strengthening country accountability

My overall assessment about international financing for malaria is that it is not realistic to expect an increase. The priority should be on how to make existing international financing flows and domestic financing work better together in achieving faster and effective malaria control.

In health financing, the saying “he who pays the piper calls the tune” is often true. But it can distract us from considering issues related to institutions and the effectiveness of accountability and voice. It is quite likely that the people living in high-burden countries already finance the bulk of malaria spending, far more than the one third reported by WHO and others [1]. However, in high burden countries local public financing frequently does not reflect the priorities of the people, particularly in the provision of universal access to healthcare. Governments mobilize insufficient taxes to pay for health, they spend too little to provide adequate services that people want, and they fail to invest in and incentivize health managers to use limited resources well. Unless these broader issues are addressed by the malaria endemic nations themselves, it may be hard to accelerate or sustain malaria elimination in the highest burden countries.

The malaria community cannot by itself solve these wider health system challenges that constrain malaria elimination. And they may well be more critical in high-burden countries with high transmission where no single subset of interventions can be sufficient. To the extent that they are fundamentally local problems of accountability and government performance, they also cannot be solved by international funders. However, funders could do more to do no harm and to align with other efforts to improve overall healthcare access. They could also make serious investment in building local capacity to manage health services, and could pay more attention to what people in high burden countries want rather than what people in high income countries expect.

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“Decolonizing Malaria Governance,”
by Jesse B. Bump and Ifeyinwa Aniebo

Note: This preprint is part of the “Rethinking Malaria in the Context of COVID-19” series. All of the manuscripts produced in this effort will be submitted for peer-review and published as a compendium. This preprint is being made available to enable a broader discussion around key challenges and solutions.

The “Rethinking Malaria in the Context of COVID–19” global engagement was constituted as a consultative process to ‘take stock’ and push beyond conventional thinking to question fundamental assumptions and approaches, with a focus on bold new ideas to achieve real-world progress. The process managed by three governance bodies comprising a Steering Committee, Working Group Co-Chairs and contributing authors, and an External Advisory Committee. For a listing of the “Rethinking Malaria” Working Group Co-Chairs and contributing authors and External Advisory Committee members, see Text A1.

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Supporting Information:

Text A1: [“Rethinking Malaria in the Context of COVID-19” website.](#)

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Abstract

This paper explores the decolonization of global health through a focus on malaria governance. We employ an historical perspective to advance a discussion that thus far has been mainly normative. We take this approach to better articulate what “colonial” means and to specify in greater detail how colonial ideas, patterns, and practices remain an obstacle to progress in the present. This paper presents a history of malaria, a defining aspect of the colonial project. Through detailed analysis of the past, we recount how malaria became a colonial problem, how malaria control rose to prominence as a colonial activity, and how interest in malaria was harnessed to create the first schools of tropical medicine and the academic specialization now known as global health. We discuss how these historical experiences shape malaria policy around the world today. The objective of this paper is to advance discussion about how malaria

could be decolonized, and to suggest directions for future analysis that can lead to concrete steps for action.

Introduction

What would it mean to decolonize global health? This simple question has become a primary feature of the published global health discourse, drawing particular momentum as the COVID-19 pandemic has highlighted vast inequalities in the distribution of vulnerability, risk, and interventions such as vaccines [1-6]. More generally, awareness of inequalities within and between societies has led to questions about how to counter the sequelae of historic injustices, including slavery and colonialism. Motivation for these questions has included ongoing inequalities, as in the geography of power: most prominent among the donor countries are the former colonial and imperial powers, which also house leading institutions of research, education, philanthropy, commerce, and international governance. By contrast, formerly colonized countries remain poor, and formerly subjugated people enjoy worse health and shorter lives. Similarly, prominent journals and leading authors of global health research remain largely associated with the United States, the United Kingdom, and other colonial powers, even as their work is largely concerned with formerly colonized places and people. These and similar observations about the inequalities of influence and decision making have informed demand for the decolonization of global health [7-12].

The discussion of decolonization in global health has been conducted primarily in normative terms, and a specific agenda for decolonization has yet to be articulated. In part, the emphasis on normative aspects reflects the obviousness and simplicity of some problems, which do not require sophisticated analyses or call for complex solutions. For example, in April 2021 the US President's Malaria Initiative announced a \$30M grant to seven institutions to help African governments improve data for decision making in malaria control and elimination. Yet none of the institutions were in Africa—they were in the US, the UK, and Australia. In voicing concerns about this, several African scholars working in malaria also noted that just 1% of research funding for malaria goes to African institutions; 99% goes to institutions based in rich countries [13]. However, the persistence of this inequality shows that unfairness alone is unlikely to change the processes that produce it. The imperative of decolonizing global health thus identifies the need to examine more closely what “colonial” means and to specify in greater detail how colonial ideas, patterns, and practices remain an obstacle to progress in the present.

In this paper we seek to inform ongoing discussions of decolonization in global health by examining malaria and the history of its control. We selected malaria because it was a defining aspect of the colonial project and remains prominent in global health today. We choose to focus mainly on sub-Saharan Africa because that is where anti-malaria activities are most prominent now globally and where the burden of disease remains highest. Establishing these boundaries allows us to address a series of questions that are otherwise too open-ended to answer clearly in a brief, exploratory paper. For example, what was and is colonial about malaria and its control? What connection is there between ideas and actions of the past and the ongoing present? How do these old ideas constrain our thinking now, and how can we make progress against malaria if colonial influences persist?

This paper presents the colonial history of malaria, which we explored by reading journal articles from the late 19th and early 20th centuries, along with more recent scholarship by historians and other analysts of malaria in that period. Through detailed analysis of the past, this paper recounts how malaria became a colonial problem, how malaria control rose to prominence as a colonial activity, and how interest in malaria was harnessed to create the first schools of tropical medicine and the academic specialization now known as global health. We discuss how these historical experiences shape malaria policy around the

world today. Our overall objective is to advance discussion about how malaria could be decolonized, and to suggest directions for future analysis that can lead to concrete steps for action.

An obstacle to colonization

Among our most fundamental observations is that the study of malaria and its control were so closely tied to colonization that these two legacies cannot be separated. The colonial project provided the reasons to study malaria, determined who was in a position to do so, and shaped knowledge generation and its application for malaria control, along with the distribution of its benefits. Simply stated, the reason to study malaria was that it was the largest obstacle to colonization. Metropolitan military and business interests were compromised by the susceptibility of White settlers to malaria, which was by far the largest cause of death. As historian Raymond Dumett has shown, in coastal cities such as Lagos and Freetown, White mortality averaged 70 or 80 per 1000 annually in the late 1800s, but colonizers in the interior fared much worse. In 1865 a British parliamentary committee had recommended largely withdrawing from West Africa altogether due to disease threats. When the Gold Coast was declared a colony in 1874, the first three candidates declined the Governor's job because of the health risks; James Maxwell assumed the position on March 4th but died of malaria that same month [14]. Although reliable data are not widely available, some paint a devastating picture. For instance, for European troops in Sierra Leone from 1817–1838 average annual mortality was nearly 500 per 1000 [15].

The tremendous malaria mortality figures raise the question of motives for colonization. In the face of such fearsome odds of death, primarily from malaria, why did Europeans do it? At the risk of oversimplifying the complex political economy of colonization, the answer lies in perceived business opportunities and the state administrative mechanisms that favored Europeans. There had been substantial trade between Europe and Africa since at least the 1500s, centered mainly on slavery. When the international slave trade was banned by the British in the early 1800s it disrupted longstanding relationships that had been based mainly at European coastal forts. African rulers would sell captured enemies, among others, to European slavers at these places. As analyzed by economic historian Edward Reynolds, following the slave trading ban, Europeans sought trade in other products, including in raw materials such as cotton and gold, and in manufactured goods from Europe. Private trade favored an emerging class of African merchants who served as middlemen going between the coastal areas and the interior, where many Europeans would not venture due to the risks of malaria. Many African merchants had direct relationships with European manufacturers, but these and other relationships were undercut by many disagreements [16].

As happened in other places, in the Gold Coast the British responded by trying to build legal and administrative structures that would let Europeans trade more easily and more directly with African customers. In economic terms, Chiefs had benefitted as the sellers of slaves, but trade in raw materials and products favored merchants, whose power grew over the early decades of the 1800s. Thus at mid-century when the British proposed an alliance with Chiefs and pledged to establish a stable trade system, they found some agreement. To pay for the expenses of administration, the British asked Chiefs to submit to their rule and in 1852 announced a poll tax, non-payment of which was used to justify fines against indigenous people. The right to collect the fines was then sold to private companies that wanted to be paid in local products such as palm oil. Ongoing disputes led to a series of Anglo-Ashanti wars and the declaration of a Gold Coast Colony by the British in 1874 [16]. Similar dynamics played out in other colonies, such as Nigeria [17], and as Elise Huillery has shown for French West Africa, colonial administrations were financed mainly via taxes on the colonized, rather than with metropolitan funds [18]. Thus, the main reason for colonization was to secure trade advantages for European firms [16], although other motives such as religious conversion and racial discrimination were also prominent [19].

The main obstacle to these objectives was malaria, which limited military control and threatened all European activities, especially in the interior.

A colonial priority and an academic specialty

For these reasons, malaria became a critical problem to Europeans and a core threat to their colonial ambitions. The colonial context made malaria a major priority for study and resolution. The causal agent of malaria, the plasmodium, was identified in 1880 by Alphonse Laveran, a French Army physician working in Algeria [20, 21]. Mosquito transmission of malaria was demonstrated in the 1890s by Ronald Ross, a British colonial officer in the Indian Medical Service [22]. Both men felt their research contributions were undervalued by their respective colonial services, and both used their parasitological celebrity to transition to full-time research careers [23, 24].

These moves reflected powerful forces that led to the first schools of tropical medicine around the same time. The first two were founded in 1898 in Liverpool, which Ross joined the following year, and London. Liverpool had dominated the English slave trade, followed by London in second place [25, 26]. The Liverpool School of Tropical Medicine was founded with support from the Elder Dempster shipping company, revealing the critical importance of malaria control to the private sector businesses that profited from colonialism [27, 28]. In the late 1800s, “British trading firms and chambers of commerce [were] the leading critics of West African health conditions [and] harassed the Colonial Office with complaints about the polluted ponds and wells, refuse-strewn streets and yards, and open sewage pits” as major threats to their own health and the profitability of their businesses [14].

The London School of Tropical Medicine was founded with support from the Colonial Office and voluntary contributions from the British public. This reflected the combined interests of Medical Advisor to the Colonial Office Patrick Manson, who had proven the insect transmission of disease as a colonial officer in Southeast China in the 1870s and later mentored Ross, along with businessman and Secretary of State for the Colonies Joseph Chamberlain [29]. Chamberlain had presided over the launch of both schools and at Liverpool’s inauguration declared “The fight against tropical diseases constitutes the real basis of the politics of colonization” [27]. This pattern was followed by all the major European colonial powers, which founded their own similar schools in the years that followed. As historian Isabel Amaral has analyzed, the arguments used by medical authorities to gain support for a school of tropical medicine in Lisbon (founded 1902). In her retelling, one proponent in 1901 captured the sentiment as follows:

Colonisation is not only a social and economic question but also a question of hygiene and pathology. The prosperity and wealth of a colony depend, first of all, on the ease of the living conditions to be found there by the colonists. The remedy to the serious risks presented by colonization undertaken blindly lies in the intervention of medicine together with the highly powerful resources that are currently available. England, Germany and France have demonstrated their recognition of this reality by creating centres for study and teaching that can easily be converted into colonial well-being and colonial prosperity [30].

Malaria was the motive force behind the creation of academic tropical medicine, a blend of laboratory science, medicine, hygiene, and public health that would be familiar to any current student of global health. Initially, this specialization had emerged within colonial governments, but quickly it split off into an independent academic profession. In part, this reflected stronger career incentives and opportunities for greater prestige [23, 31, 32]. The insights gained from scientific study were codified and advanced through elite, internationally oriented academic networks that functioned along lines of shared

experiences and expertise in colonial settings, which were largely separate from existing domestic medical networks. Both Ross and Laveran were awarded Nobel Prizes for their malaria work (1902 and 1907, respectively), and Ross in particular spent much of his subsequent career complaining that physicians doing tropical medical research were not recognized or remunerated properly for their leading role in the colonial enterprise [23]. In launching the *Société de Pathologie Exotique* in Paris in 1908, Laveran cited facilitating colonial expansion and protecting the metropole as primary motivations [33], much as Manson had done a few years before at the foundation of the London School of Tropical Medicine [34].

The basis for inequality

Scientific findings on the details of malaria transmission quickly percolated into colonial policy. The close connection between academic tropical medicine and colonial administration came from shared experience, common goals, and mutual dependence, since many or all members of the emerging profession had been in colonial service or colonized places, wanted to advance colonialism, and wanted to solve the same problems in the same places. Hence, within a few months of retiring from service in India and joining the Liverpool School, Ross headed to West Africa on a malaria expedition at the request of the Colonial Office [35]. Ross and his colleagues recommended abandoning older, more expensive drainage strategies in favor of a more targeted attack on only Anopheline mosquitoes and their habitat, which would be cheaper, easier, and have the same effect on malaria as more general measures, they argued [35]. New knowledge about malaria transmission by Anophelines and the racist perception of Africans as a reservoir of disease led to an official Colonial Office policy of segregated living as of 1901. The construction of hill stations, separated European-only neighborhoods in cities, and separated lodging areas on plantations were quickly pursued throughout the British Empire [36, 37].

Racist segregation policies quickly led to a divergence of recommended malaria control measures, depending on whose well-being was perceived to be at stake. Much emphasis was placed on the appropriate location and construction quality of homes for Europeans. For example, in Freetown, official plans called for housing for Europeans at high altitude, at least a half mile from any indigenous person's dwelling, and featuring extra-large windows to admit salubrious breezes. This led to a conflation of segregation and safety, while deploying the benefits of malaria knowledge almost exclusively for Europeans [37]. Similarly, colonial governments routinely dispensed quinine tablets for Europeans, but did not do so for indigenous people. Writing in South Africa, one colonial medical officer explained the conditions under which malaria control efforts would be extended to native people:

The unscreened native hut is therefore a very great danger to the farmer, particularly when it is only a matter of a few hundred yards or less away from his home. These squatter native families on Transvaal farms are a malarial menace on account of their being the reservoir of infection for the newly-born mosquito vector seeking its first blood-meal. Generally, we advise farmers to keep such huts a good distance—at least a mile away from European homes. Where this is impracticable, these native huts should at least be sprayed daily [38].

The narratives of colonial malaria control did not give prominent attention to the ways in which colonialism itself was responsible for increasing the distribution and worsening the consequences of the disease. As historian Randall Packard has investigated, large-scale agricultural practices, labor conscription, and forced migration all had disastrous consequences for the prevalence of malaria. Irrigation and dam projects created vector breeding sites where none had existed, forced migration spread the parasite by mixing infected and naïve populations, poor nutrition and poverty increased susceptibility, and land seizures forced Africans to live in unhealthy geographies they had previously

avoided [39]. To a large extent, modernizing agriculture had produced similarly disastrous increases in malaria wherever it had existed, including in Southern England in the early 1800s. But the burden fell over the following decades with generalized improvements in environment and living standards, hygiene, and nutrition—all before the scientific insights of Laveran, Ross, and Manson [40]. The same thing had happened in the Southern United States, as well [41]. Following Packard’s analysis, these developments happened organically under normal conditions, but under colonialism, the continual extraction of economic surpluses, the enforcement of trade terms that disadvantaged indigenous people, and governments that prioritized European interests all enforced an ongoing state of under-development that both promoted malaria and precluded public health responses [39].

Colonial continuity: the global health era

In the global health literature of today, narratives typically cast malaria as a historic scourge described in ancient texts from China, Egypt, and by Hippocrates himself in Greek antiquity [42]. Clinical and technical descriptions of malaria are also common, characterizing the disease as the result of infection by a protozoa, *plasmodium* [43]. The impression created by such narratives is that malaria has always existed and always expressed a terrible toll wherever it has been found. This perspective hides a more complete truth. Malaria is indeed an historic disease, but the malaria of old was vanquished by ordinary and organic processes that characterize development. Malaria as we know it today, on the other hand, was produced by colonialism, and the study of malaria was intended to protect colonial interests, not to protect indigenous people or defeat the disease more broadly. Hence, the academic study of malaria played a crucial role in sustaining the spread of disease, providing ways for Europeans to colonize even more effectively, as their activities fostered a new large-scale ecology of unending malaria for indigenous people.

As pioneered by Ross, Laveran, and many others, the scientific study of malaria yielded greater pay and prestige as part of an international academic enterprise, as opposed to within government or even colonial service. This established London, Liverpool, Paris, Antwerp, Berlin, Boston, Baltimore, New Orleans, and other metropolises as the enduring centers of malaria research even though the disease was already defeated in those places, or soon would be. This shows again how knowledge about malaria, as constituted under colonial patronage, was designed more to win prestige for researchers and to selectively manage the disease’s threat without actually investing in the development that had rendered it unimportant in the cities where the schools were founded. Thus began the long tradition of metropolitan researchers making frequent travel to malarious areas for reasons that were based on self-interest. These origins show why the centers of malaria research have never moved toward the areas where malaria is a problem, and they explain why local knowledge about malaria and affected communities is not valued in the research process. Colonialism was prosecuted over the objections of indigenous people, and so too was its research.

Data is the lifeblood of academic work on malaria, and control of its collection, ownership, and analysis is closely guarded by Northern institutions, even though most of it must be gathered in endemic areas of Africa. In this light, the commonly known donor and international agency preoccupation with data and measurement can be viewed as an effort to maintain control over a primary resource for Northern schools and departments engaged in global health, in addition to the publicly stated objective of improving the quality of decision making. The long history of systematic data collection by donors has been one means of maintain the primacy of Northern institutions in debates about the global South, for instance, the US Government has been funding data collection efforts since at least the 1950s [44], including the World Fertility Survey starting in the 1970s [45] and the Demographic and Health Surveys since 1984 [46]. It is important to ask who designs the methods, who shapes the questions, who controls the data, and who

benefits as a result. In the colonial period, indigenous people were sometimes the subject of study and sometimes participated in collection, such as by catching insects for entomological surveillance. But they were almost never permitted to participate in the analysis and decision making that followed. We must ask hard questions about data for malaria in the present.

Aside from academic interests, the other primary goal of colonial malaria control was to facilitate economic extraction. It is troubling that the dominant strategies in malaria control today are privately produced products: bednets and pharmaceuticals. Swamp drainage, housing improvement, and other generalized aspects of public health and development defeated malaria in rich countries, but are not common aspects of donor programs now. Even residual insecticide spraying, a long-proven technique, is no longer in favor. We must ask if these patterns reflect the continuing dominance of private sector interests over the health of people at risk of malaria.

Rethinking malaria today thus requires grappling with the colonial shaping of malaria and malaria control. Colonialism is so central to the creation of both malaria and its related academic enterprise that it is impossible to decolonize without rethinking every underlying principle and relationship. Although few or none in global health today would identify in support of the colonial project, the roads on which we all walk were built for extractive purposes and still embody unquestioned inequalities of power and privilege. The concepts and institutions of colonial malaria are embedded deeply in the current efforts related to malaria. Indeed, some people may not recognize the reach of the colonial roots, which makes an effort at decolonizing that much more challenging.

To consider decolonization means to ask questions about the world in which we live and its dominant patterns, and to consider alternative concepts for thinking about malaria and malaria control. Positions of privilege can be useful for raising such questions, but the identification of solutions requires moving the locus of discussion from the metropolises to affected countries. To rethink malaria in this context requires changing who is most central in the discussion and altering the lines of accountability, and creating new concepts of disease and control; It requires reversing the direction of control, from funders and other agencies in the global north to those in the endemic south, and engaging the people whose lives are endangered by malaria. Fundamentally, decolonization means rethinking and restructuring the governance relationships that shape decisions about malaria. Decolonization is not fundamentally a rejection of knowledge accumulated under colonial arrangements, nor a return to pre-colonial conditions; instead it is a question of how we change objectives and accountabilities in favor of development and autonomy, and how we use that knowledge to move away from the production of inequality and dependency.

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**“Rethinking Communications for Governance of
Malaria Programs,” by Jimmy Opigo and Anya L. Guyer**

Note: This preprint is part of the “Rethinking Malaria in the Context of COVID-19” series. All of the manuscripts produced in this effort will be submitted for peer-review and published as a compendium. This preprint is being made available to enable a broader discussion around key challenges and solutions.

The “Rethinking Malaria in the Context of COVID–19” global engagement was constituted as a consultative process to ‘take stock’ and push beyond conventional thinking to question fundamental assumptions and approaches, with a focus on bold new ideas to achieve real-world progress. The process managed by three governance bodies comprising a Steering Committee, Working Group Co-Chairs and contributing authors, and an External Advisory Committee. For a listing of the "Rethinking Malaria" Working Group Co-Chairs and contributing authors and External Advisory Committee members, see Text A1.

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Supporting Information:

Text A1: "Rethinking Malaria in the Context of COVID-19" website.

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Abstract

The global COVID-19 experience has demonstrated that it is possible to rapidly shift health programming and governance. Malaria programs also urgently need to change, and in this essay we argue that a key to transforming malaria programming is much stronger and more strategic use of communications. Malaria has, to a great extent, become normalized and accepted as inevitable. Bringing malaria to the forefront requires going beyond technical interventions. To truly have an impact on improving the malaria situation in the countries where it is most entrenched, malaria program staff and advocates must also focus more on strategic communication focused on rallying the full range of stakeholders to prioritize malaria. Our concept of communications goes beyond the typical malaria behavior change communication or information, education and communication campaigns. We focus instead on communication as a “soft

skill” that is an essential tool for governance of national malaria programs. Effective communications can trigger improvements in malaria control by driving and supporting decision-making by individuals and leaders. Further, communications is a tool used to improve policy, mobilize resources, and serve as the management glue that holds a malaria program and team together. Our framework for communications involves five key elements: knowing the audience, defining the message, designing a medium, identifying a messenger, and selecting the timing. Throughout the essay, we draw on experiences from Uganda, where one of the authors leads the country’s National Malaria Control Division.

Introduction

Malaria is one of humankind’s oldest and most persistent health challenges. As a result of its longevity, the morbidity and mortality malaria causes have, to a great extent, become normalized and accepted as inevitable. Preventing malaria is regarded as a matter of individual responsibility through the use of bed nets. Among health care providers in endemic countries, treating malaria is considered “business as usual”, and thus malaria reduction measures are not passionately pursued by the health system. Research into new approaches and tools for vector control and disease treatment is initiated and driven by academic questions and industry priorities, rather than by frontline malaria programs. In all, for people living in malaria-endemic countries, as well as for global health professionals, malaria is neither a “hot” (that is, new and interesting) nor a “sexy” (that is, exciting and engaging) topic.

Yet as malaria experts and many others in global health are well aware, malaria should be a major and urgent cause of concern for governments, health care providers, global health policy advocates and local communities around the world. We argue that bringing malaria to the forefront of health improvement and sustainable development efforts in endemic countries requires more than technical interventions. To truly have an impact on improving the malaria situation in the countries where it is most entrenched, malaria program staff and advocates must also focus more on strategic communication focused on rallying the full range of stakeholders to prioritize malaria. As we will elaborate, our concept of communications goes beyond how the term is traditionally used by malaria experts. Typically, malaria communications refers to behavior change communication (BCC) or information, education and communication (IEC) campaigns designed to inform people in communities about malaria prevention and treatment options. We focus instead on communication as a “soft skill” and a tool to make national malaria programs more effective in advocating for and carrying out their work.

Throughout this essay, we draw on experiences from Uganda, where one of the authors leads the country’s National Malaria Control Division. Ugandans experience 5% of all global malaria cases and 3% of all malaria deaths, despite accounting for less than 0.05% of the global population [1]. Estimates vary, but malaria infections are the cause of approximately 40% of outpatient visits to clinics around the country and up to 20% of hospitalizations [2, 3]. In a recent study conducted in five clinics in five high malaria-burden districts, malaria was suspected in over 73% of all outpatient visits and nearly 70% of those tested were positive for the disease. These proportions were slightly higher among children under the age of five [4]. Severe malaria was estimated to kill well over 10,000 people in Uganda in 2019 [1]. The problems malaria causes persist despite notable progress made in previous years in controlling the disease, the existence of significant scientific, biomedical and traditional knowledge about preventing malaria by preventing mosquitoes from breeding near and biting humans, and the existence of effective treatments. As Uganda’s experience shows, complex efforts to control, eliminate, and ultimately eradicate malaria are long-term endeavors, not one-time interventions.

So why does malaria remain entrenched in Uganda, as in so many places? Why do national malaria interventions receive insufficient attention and support from political and community leaders? Why are many malaria programs understaffed and under-resourced, even when funding is available to countries from the Global Fund to Fight AIDS, Tuberculosis and Malaria and other bilateral and private donors? Why has global progress in reducing the burden of malaria slowed in recent years?

These gaps represent a failure of governance—that is, in the structures and processes that should be identifying malaria as a priority, setting ambitious goals for reducing the burden, and equipping and holding people accountable with accomplishing these objectives. These governance challenges arise from many factors rooted in history, science, advocacy and culture. Improving governance of malaria programs in the near future will require, among other shifts, much stronger and more strategic use of communications by those in the malaria community with a strong vision for controlling and eliminating malaria. The global COVID-19 experience has demonstrated these kinds of shifts are possible; once key stakeholders prioritize dealing with a disease and its societal consequences, the development of technology, provision of funding, deployment of human and other resources, and accountability structures all swiftly follow.

Communications for Malaria Governance

In this essay, the term “communications” goes far beyond telephone calls or television advertisements. As noted, it also goes beyond IEC and BCC campaigns. We consider communications to encompass the full range of formal and informal activities and mediums by which human beings convey and receive information and messages. Strategic communications is the use of communications to promote an agenda—such as eliminating malaria morbidity and mortality—by engaging with current and potential stakeholders. Strategic communications is the key to building a communal sense of purpose and urgency in a complex and dynamic world.

In Uganda, national malaria control strategies are created by technical experts at the Ministry of Health, often with technical support from international malaria experts. In recent years, these were codified in *The Uganda Malaria Reduction Strategic Plan 2014-2020* [5]. A review completed in 2017 identified many shortcomings in the national malaria program and recommended a complete program reorientation to make it more focused, holistic and multi-sectoral, and therefore more effective.

Outlining good technical strategies, however, was only the first step. The program’s leadership realized that in order to make change, they had to move beyond asking only, “How should the national malaria control program achieve its objective: reducing malaria?” They also had to develop a more complex understanding of malaria governance. Getting the resources to implement the proposed new strategies required convincing national decision makers, who allocate the government’s budget, and the international donors that provide financial support. It also entailed convincing busy health care providers to adapt their practices, persuading stakeholders from other public sector agencies and the private sector to lend their support, encouraging political and traditional leaders to participate, and most of all, engaging with local communities—the intended beneficiaries of the strategies—to gain their trust and understand how malaria fit in with their other priorities. Communications also plays a role in building a strong team to implement malaria programming.

Constant and purposeful strategic communications is not a program that can be easily encapsulated or quantified. It requires soft skills, including tactical thinking and leveraging network opportunities, that are not routinely taught in public health and civil administration training programs. However, it is an essential

area for malaria program leadership. Effective communications can trigger improvements in malaria control by driving and supporting decision-making by individuals and leaders. It is a tool used to improve policy and mobilize resources. And it serves as the management glue that holds the malaria program and team together and supports them to maintain strategic interests, coherence and focus.

The key elements of communications are, broadly:

- Audience: who needs to receive a given message
- Message: what the program wants the audience(s) and stakeholders to learn, understand, or do
- Medium: how the program delivers these messages to different audiences
- Messenger: who delivers the messages to targeted audiences
- Timing: when the audience is open to receiving messages

Regularly developing clarity about each of these is an important practice.¹ So, how does a national malaria control program engage with the full range of stakeholders to “sell” them on supporting the program to pursue its preferred strategies and achieve its stated goals?

Segmenting Audiences for Malaria Governance

Communications seeks to engage all relevant stakeholders to align their understanding and to convince them to participate in creating a functional partnership with unity of purpose. Stakeholders at all levels, from the local community up to the President’s Office and global donors, need to agree on what the malaria program seeks to do, and how it aims to do it. Then they can coordinate individual efforts in support of shared goals.

The process begins with defining who the key stakeholders are. Stakeholders can then be “segmented” into “audiences.” Depending on their viewpoints and positions, different audiences will respond to different types of messages, different formats, and different messengers. Tailoring communications requires understanding your audiences, and understanding requires listening. In this context, listening can be interpreted literally, as in meeting with stakeholders to solicit their views and learn about their interests and needs. It can also be understood figuratively: the malaria program can “listen” to stakeholders by assessing their actions and behaviors indicate that they have heard the message and are responding to communications in the way the program intended and desired.

Thus strategic communication flows in both directions. In order to understand the aims, interests, and preferences of any audience, malaria program leaders must also make themselves available and open to listening to their concerns. Open dialogues with audiences have many benefits: most of all, it enables leaders to understand their stakeholders’ opinions and situations, which they can then consider in developing and implementing programs. In addition, two-way communication allows leaders to build interpersonal relationships, earn the respect and trust of audiences, and develop a good reputation. This helps to position the leader and the malaria program overall as a source worth heeding.

¹ For example, the message of this paper is that in order to make malaria programs more effective, they need to build their capacity to engage in strategic communications with a wide range of stakeholders. We want this message to be understood by malaria program managers and their supporters. Our medium is this essay. The messenger is the leader of Uganda’s malaria control efforts, whose experiences in his work have led him to understand this message. And by publishing this piece in conjunction with a global effort on “Rethinking Malaria in the Context of COVID-19,” we hope to reach an audience of people excited to consider new approaches to malaria control and elimination programming.

In Uganda, the audiences for governance-related communications from the malaria program goes far beyond the Ministry of Health and local health authorities. It also includes:

- *Politicians*, including the President and Parliamentarians. Their support for and engagement in malaria programming signals that the government considers malaria an important issue.
- *National and global policy makers*, such as officials in the Ministry of Health, technical advisors to political leaders, and global experts. They can operationalize priority-setting and resource allocation to the malaria program.
- *Funders and health development/implementing partners*, including the Ministry of Finance, donor agencies, and non-governmental organizations. Their understanding of the malaria program facilitates access to resources and support for financial management.
- *Leaders in other sectors* that are affected by or have a stake in malaria. This may include the private sector, such as industries that rely on healthy workers (especially agriculture and mining), and industries that provide commodities used in malaria prevention and treatment, such as pharmaceutical and vector control companies. It also includes other relevant government sector agencies, including finance, economic development and planning, environment, housing, education, tourism and others.
- *Local leaders*, such as District Health and Medical Officers, local authorities, and traditional leaders, who allocate resources locally and have significant influence with their constituents.
- *Intended beneficiaries* of the program. This audience includes on-the-ground implementers, such as health care providers, community health workers, as well as community members and the general public.

Most of these people and organizations are clearly outside of the malaria program. However, their support is essential for the program to implement its activities. Their support may be political, financial or engagement; in all cases, the program needs to convince stakeholders to make some change in order to successfully reduce malaria. In some cases, communications with external stakeholders are recognized responsibilities of a program manager, such as engaging with advisory boards or donors. However, there are many other (less well-defined but equally important) aspects of external communications that also influence the governance of a malaria program.

Internal Audiences

Malaria program managers must also be strategic as they engage in internal communications with program staff. Strategic internal communications enable a leader to build a cohesive and motivated team that is informed and aligned with a common mission and goals. Creating internal cohesion requires constant communications for team-building, conflict prevention and management, aligning staff with the organization's stated priorities, and generally organizing the group to work towards the same goals. Internal communications include participating in group meetings where staff can share their opinions, seeking out one-on-one conversations, displaying the mission and vision of the program widely to reinforce it, and others.

Developing cohesion within the organization is critical so that all members of the group can coordinate and reinforce common messages, activities, and responses to the inevitable changes in the environment where the program is working. Maintaining open internal communications is key in change management and conflict prevention among the team. Strategic communications from leadership emphasizes, fosters and supports all staff members to collect and utilize data and evidence, adopt and adapt innovations, and generally participate in the functions of a responsive, adaptive, and learning organization.

Components of Communications for Malaria Governance

As noted, communications has four more elements: the message, the medium, the messenger, and the timing. To truly communicate with a stakeholder the malaria program wishes to reach, all of these components must be gotten right: an acceptable messenger must deliver a relevant and comprehensible message in an accessible way at a time when the audience is open to receiving it. The malaria program can develop rough indicators to evaluate whether its governance communications have been received, such as the amount of resources donors commit or the backing provided by key leaders in difficult negotiations.

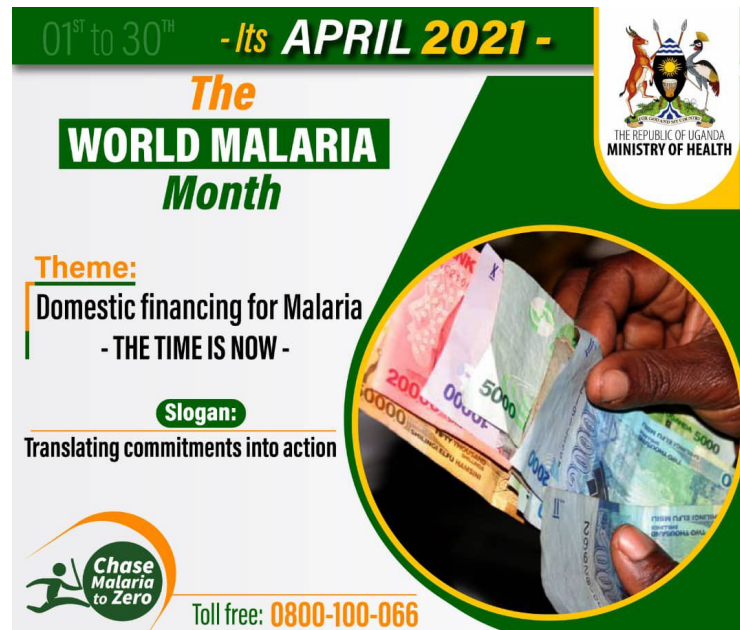
Component #1: The Message

If malaria is such a big problem, why doesn't the health sector truly care about it? After all, we never run out of children's vaccines, but malaria drugs are often unavailable at the clinics.

At the most basic level, the key message regarding malaria must be that malaria is conquerable and an urgent priority for the current generation. This message is as essential in improving governance of malaria as it is in promoting use of bed nets or encouraging testing in case of a fever. More explicitly, the national malaria program's message is: malaria is a big problem, but if government, civil society and individuals alike pay more attention and put more resources into addressing it, it could be tackled effectively. This is urgent: interventions exist for preventing and treating malaria, but we are not deploying them widely, strategically, or intensively enough—and doing so is critical before these options lose their potency. Successful malaria prevention is incumbent on individuals and households taking responsibility and actions to prevent mosquito reproduction, protect people from mosquito bites, and seek care promptly in case of fevers. Developing new approaches to malaria prevention is also critical to transcend the status quo and move towards elimination. These efforts require more investment and innovation from all sectors.

Doing strategic communications requires understanding which parts of the message will resonate with which audiences, and tailoring it to elicit support and align with their own agendas. For example, donors do not like to “throw good money after bad.” That is, they prefer to invest resources in programs that are likely to have positive outcomes or at least are innovative. This creates a problem for malaria programs, as the basic interventions are well known, even if they have not been properly implemented. “Rebranding” the program periodically, highlighting innovations and new determination, can help. In Uganda, the national program has rebranded its work with a new logo and slogans that emphasize action, such as “chase malaria to zero,” “under the net,” Mass Action Against Malaria, Malaria Free Uganda and others (see, for example, Figure 1).

Figure 1: Recent advertisement emphasizing action and urgency



Messages should be designed to respond directly to the concerns and interests of stakeholders. For example, policy makers and politicians rarely make decisions based exclusively on scientific evidence. They may want to know: Who are the intended beneficiaries of a proposed program? Will a new policy solve human rights, gender, or equity issues? Will malaria programming help lift people out of poverty? Will a policy target disadvantaged populations or the whole country? Will a program have a visible impact during their term of office? The malaria program has to understand these concerns and address them directly in its communications with policy makers and politicians. It is also critically important to report back on the results the malaria program achieves, in order to strengthen stakeholders understanding of how the program operates and how it deploys the resources stakeholders invest.

A final note on the language used in messaging: most malaria programs are staffed by technical officers accustomed to using scientific terms, program jargon and many, many abbreviations such as IRS, ITN, ACT or MDA.² These are generally only understandable to other experts. Instead, malaria programs must learn to use widely accessible words, terms and concepts in order to engage and convince key stakeholders.

Component #2: The Messenger

We have to fight to catch the attention of the President. Whenever there is a vaccination campaign he drops in and then everybody knows that immunizations are important for child survival. We need to do the same for malaria.

The national malaria program manager is the key figure when it comes to communications for governance. He or she represents the program to external stakeholders and must build team spirit and boost morale within the program. In both roles, skill in informal communication is often overlooked as a job

² IRS: indoor residual spraying; ITN: insecticide treated net; ACT: artemisinin-combination therapy; MDA: mass drug administration

requirement, but it is critically important. The tone, content and frequency of emails, text messages, and phone calls are important. Participating in networking opportunities such as other organizations’ meetings and events, sending seasonal greetings, meeting for conversation over coffee—these activities may seem time-consuming or even trivial compared with scientific research or bednet campaigns. However, informal contacts convey verbal and nonverbal communication that help create openness on the part of the stakeholders. Their openness ultimately serves the malaria program if their trust and engagement make stakeholders open to receiving the malaria program’s messages.

For some audiences, in fact, the messenger may be the most important factor in whether they accept the message. This may be especially true when dealing with representatives of other sectors (who may not immediately see the relevance of malaria to their endeavors) and with political leaders (who are constantly juggling a multitude of stakeholders who want their attention). In addition to *being* knowledgeable, credible, and ethical, the program staff must also be *perceived* as all of these characteristics. Malaria program managers and other staff must work to establish themselves as reliable sources of information and ideas with positive personas.

In some cases, the program staff should consider identifying other appropriate and acceptable messengers to reach key audiences and convey specific messages. These champions may include influential persons, religious, political and traditional leaders, and celebrities.

In Uganda, until recently, the malaria program within the Ministry of Health was understaffed, with only five people. Comparing this team with larger Ministry teams, such as the one leading HIV and AIDS programming, sent a clear nonverbal message about the lack of priority placed on malaria. While various malaria-specific stakeholders had noted the problem over the years, they had never successfully built up the team. When the current manager came on board in 2016, he saw that building up his team was a necessity, as without more staff, the program would not be able to achieve its objectives. By leveraging strategic communication within the Ministry of Health, the team was able to argue successfully for more staff positions, framing it as an appropriate response to the extent of the malaria problem in the country. Within a few years, the program grew to employ approximately 30 people. This level of staffing has elevated the malaria program’s visibility and increased its capacity to do more work.

Component #3: The Medium

At one point, the Minister of Health mostly talked about maternal, child health and tuberculosis. And she was so busy it was hard to get a meeting with her, even though there was a raging malaria upsurge. Showing her the map of malaria cases, highlighting the number of deaths, when I encountered her in the hallway one day allowed me to quickly and starkly show her the extent of the problem. Then I was able to secure her support for an urgent response.

As noted, strategic communications can be formal or informal, verbal or nonverbal. Selecting the appropriate medium for communicating with a given stakeholder—that is, formulating a version of the malaria program’s message that is applicable to their concerns and interests, identifying the kind of information they need to fulfill their functions, and understanding how they prefer to receive information—is essential. For example, in order to do his or her job, a policy analyst may need to receive a briefing that provides an interpretation of data from a study of availability of malaria medications in public health care facilities, but she may not need to review the data as an academic might. A journalist, on the other hand, may prefer to learn about the story of a single person affected by lack of access to malaria medications, a story that could serve as a “hook” for an article. Members of a village health team

may need to get a briefing on the study's main findings conducted in a local language. And a politician rushing from a meeting to a public appearance may only have time to listen to a three-sentence "elevator pitch" and glance at a simple infographic based on the study data. Concisely stating the problem looks different for each audience; pairing the description of the problem with a specific solution gives the malaria program an opportunity to suggest its preferred approach to addressing the challenge.

These examples assume that the malaria program already has access to reach these stakeholders. For those they have not yet made direct contact with, engaging with media outlets, including television, newspapers, radio and social media, may be required to capture their attention. In other cases, it may be more appropriate to identify acquaintances of the target audience in the malaria program's network and ask them to help with the approach.

Consideration #4: Timing and Setting

I decided to attend the conference because I saw that there were several speakers I wanted to connect with. This way, I could find them all and have a quick word, either to get them on board with our new initiative or at least nail down an appointment for later in the month.

The fourth element of successful communications is understanding when and where to deliver key messages. For example, it is important to understand the country's budgeting and planning cycles. Approaching policy makers with a great proposal the day after that budget has been approved will not garner the program support. Similarly, in the middle of a national election campaign, newspapers may not want to print a malaria story on the front page.

A related aspect is the setting for delivery of a message. For example, the malaria program manager may take advantage of less formal social venues, like sports and Rotary Clubs, churches, or social functions. In these locales, stakeholders may be in receptive moods, enabling them to better receive key messages.

Sometimes strategic timing requires knowing when to back off and return to a topic later. Approaching a policy maker or industry leader in a public forum to discuss a controversial decision may not be strategic timing; in this case it may be better to request a private appointment instead. The importance of timing means that the malaria program manager must keep in mind which messages need to be communicated to which stakeholders, so that if an opportunity arises unexpectedly, he or she can jump straight to the point.

Building a Chorus of Voices on Malaria Governance

If a woman dies while delivering a baby, there will be an outcry from the community and an investigation into root causes. But if someone dies of malaria, it's just normal business.

Making malaria a "hot and sexy" topic will not happen overnight, nor will it happen if the national malaria program is the only advocate. Messages about the importance of focusing on malaria cannot come only from health professionals. Politicians and policy makers who only hear complaints about malaria from the staff of the malaria program may infer that it is not a major problem or that program staff are just angling to keep their jobs. Thus the malaria program must reach out to a wide array of stakeholders to include them in the program's communications activities and empower them to undertake their own activities independently.

One key group in this effort is journalists, whose core mission is updating the public about pressing issues. In Uganda, the malaria program has provided trainings and information sessions for journalists to inform them about the state of malaria in the country. Following these formal engagements, journalists have come to understand the importance of a coordinated effort to address malaria as an urgent priority. They are now eager to answer informal phone calls from malaria program staff and attend their press conferences. Their coverage keeps malaria on the front pages for the public's attention, and their questions to politicians keep the issue at the forefront of policy debates. Indeed, before the Covid-19 pandemic began, malaria was receiving the most coverage of any disease in Uganda, keeping it in the public eye and emphasizing its seriousness. While Covid-19 has altered global and national priorities around the world, malaria remains a major problem that, if it is not addressed, will experience an upsurge.

Finally, the most important strategic communications must come from the people directly affected by malaria. The malaria program must not only provide communities with services; it has to listen to their lived experiences, help them to identify likely solutions, and then organize to make their messages heard. As one Ugandan malaria advocate said: "When a clinic runs out of anti-malarial medicines, it should create the same uproar among patients and civil society groups as a stock out of HIV antiretrovirals does." The malaria program cannot and should not do strategic communications in isolation. It has to recruit and engage other communicators—first to help them articulate the impact of malaria on their lives and health, and then to support them to do their own strategic communications about the disease. These stakeholders may include civil society organizations, patient and child rights advocates, labor unions and other industry partners, and local, religious, and traditional authorities. By developing messages and messengers collaboratively, the malaria program and its stakeholders can coordinate to make their voices heard.

Conclusion

Governance entails setting overarching goals, marshalling resources, and holding actors accountable for working towards achieving intended results. All of these governance activities involve human beings. And all human beings, and the systems we create, have our own interests. Strategic communications helps us to listen to and understand others' interests so that we can explain to them where our interests intersect and overlap. By doing so, we can more effectively influence policy and decision making. In the case of malaria, national malaria programs need to communicate that malaria is an urgent problem with feasible solutions. Strategic communications help us "sell" our message about why and how best to address the complex challenges of malaria.

Strategic communications for governance should be included in other leadership development opportunities for national malaria program managers. It is a natural extension of skills that are often included in leadership training, such as stakeholder analysis, decision making, change management, identifying multipolar dimensions of performance, and understanding the politics of organizations and their environment. Communication skills help bridge the gap between analysis and action by giving malaria program managers the capacity to persuade stakeholders to support the program to achieve its objectives. As mentioned, communications is a "soft skill." There are no pat formulas for successful communication. Indeed, one component of successful leadership is noticing what works and developing "gut feelings" about how and when to communicate with different stakeholders.

Malaria program managers need more routine opportunities to share their experiences with successful communications among themselves. Currently, most contact among national malaria program managers

is mediated through international agencies and academic institutions. Efforts to support direct, “south-south” communication and learning should be fostered to enable a community of practice among practitioners that does not need to be facilitated or moderated by partners from non-endemic countries. For example, new initiatives from the African Leaders Malaria Alliance (ALMA) could offer leaders in the fight against malaria opportunities to work together to support strategic communications for improved governance at local, national, and regional level.

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