Ethiopia: Accelerating Toward Malaria Elimination

Stakeholder Perspectives
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INTRODUCTION TO PROJECT

In partnership with Ethiopia’s Federal Ministry of Health (FMOH), the PATH Malaria Control and Elimination Partnership in Africa (MACEPA) has conducted a stakeholder analysis to assess the perceptions of key stakeholders in malaria policy and implementation decision-making around readiness to introduce and scale new tools and approaches to accelerate efforts toward malaria elimination. The analysis also assesses perceptions around what is needed to accelerate progress toward national targets and opportunities and barriers to increasing the prominence of malaria on the national health agenda. As the first analysis to be conducted, the results will serve as a baseline for future reports, assessments, and projects. Interviews will be conducted every two years to measure change in stakeholder perceptions over time. The analysis findings are intended to inform policies and plans to accelerate progress toward the reduction and elimination of malaria burden in Ethiopia.

ETHIOPIA CONTEXT

Ethiopia has an estimated population of over 90 million with approximately 68 percent living in malaria risk areas.¹ The country has made significant advances in reducing the malaria burden for its citizens through effective national and regional policy and planning efforts. National planning and strategy development take place within the Federal Ministry of Health (FMOH) and the Health Promotion and Disease Prevention General Directorate, while regional States are responsible for local planning and direct supervision of sub-regional health offices and facilities. At the local level, Health Extension Workers are trained to diagnose and treat malaria, supervise seasonal prevention campaign work, and support other community health activities.

In 2005, malaria control in Ethiopia was rapidly scaled up through the adoption of Scale Up For Impact (SUFII) and the switch to artemisinin-based combination therapy (ACT) as the first-line treatment. These actions resulted in a marked reduction in malaria prevalence, related illness, and deaths.² In the National Malaria Strategic Plan (NMSP) 2014–2020, the Government of Ethiopia has set a target of eliminating indigenous malaria transmission in 50 districts by 2020.

METHODOLOGY

Stakeholder interviews

Thiry-four semi-structured face-to-face interviews were conducted in Ethiopia with stakeholders in November 2014. Stakeholders represented a variety of organizations with varying perceptions on malaria policy and implementation, and were selected based on known expertise and involvement in decision-making and implementation of malaria activities in Ethiopia.

Stakeholders represent five categories: 1) decision-makers who have the ability to directly or indirectly impact the design of the NMSP, 2) implementers, who play the crucial role of operationalizing the NMSP, 3) adopters, who manage the implementation and realization of the NMSP at the district and facility levels, and 4) national regulatory representatives, who evaluate the safety and effectiveness of antimalarial medicines, diagnostic tests, and other malaria tools.

Qualitative analysis

Interview data was coded according to major themes that emerged across interviews and was analyzed using thematic content analysis. Analysis findings are presented according to the analytical framework developed by the Bill and Melinda Gates Foundation, which posits that six “building blocks”—policy, governance, financing, planning and operations, evidence base, and tool development—must be in place to accelerate efforts towards malaria elimination. Stakeholder perspectives on the current strengths and areas for improvement are summarized in the following table aligned to the six building block categories.

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² Ibid.
A supportive policy environment and an existing framework to facilitate national decision-making. Sufficient data, knowledge, and access to information for decision-makers to sufficiently support changes in policy, strategy, and guidance on malaria efforts.

- Ethiopia’s robust, evidence-based malaria policies.
- Current National Malaria Strategic Plan (NMSP) includes elimination target for select districts by 2020
- Need for national policies and strategies to address P. vivax elimination.
- Need for national policies and strategies to address drug and insecticide resistance management.
- Need for revision of National Treatment Guidelines to include intermittent Preventive Treatment in Pregnancy (IPTp), Primaquine for all P. vivax cases, and DHA-p and single low dose Primaquine for P. falciparum cases.
- Need for development of evidence-based criteria for selection of elimination districts, and operational plan to guide activities in these districts.
- Develop evidence-based criteria for selection of elimination districts.
- Develop operational plan to guide implementation efforts in districts selected for elimination.
- Revise National Treatment Guidelines to include DHA-p, a radical cure for P. vivax, Intermittent Preventive Treatment in Pregnancy (IPTp), and possibly single low dose Primaquine.

- Strong political commitment from the national government.
- Strong partnership engagement with the Malaria Control Support Team (MCST) and its Technical Advisory Committee (TAC) that lead national malaria efforts under the FMOH.
- History of government commitment to health sector development, as shown by 20-year health development plan.
- Need for stronger management capacity across all levels.
- Gaps in translation of national policies to regional implementation.
- Need for broadened partnership mechanisms to facilitate private sector and research group engagement in malaria program development and implementation.
- Develop Terms of Reference (TORs) for elimination working group and maintain functioning of group to improve collaboration across sectors and support development and adoption of evidence-based plans for elimination.
- Ensure representation of regional health bureaus in development of national policy and strategies to facilitate effective implementation at regional level.

- Increasing donor and domestic financing for malaria programs, with 2015 domestic spending projected to represent a 247% increase over the 2010 level.
- Donors generally supportive of goals and targets outlined in NMSP and have confidence in FMOH capability.
- Need for additional financing to fill existing funding gaps; and more resources are needed in the near term to support elimination efforts.
- Develop resource mobilization strategy for Ethiopia to align existing funding in support of NMSP goals and targets, and grow new sources of funding, with a specific focus on increasing domestic commitment.

- History of successful scale-up of malaria interventions and implementation of proven approaches.
- Reach of the Health Extension Program (HEP) community health system and strength of community health workforce.
- Need for more human resources and additional training at Health Center level and above.
- Need to address delayed treatment seeking and incomplete adherence to prescribed ACT courses by some community members.
- Need to identify strategies to address population mobility and malaria transmission.
- Need to identify surveillance system and scale fit for purpose across differing transmission settings.
- Develop malaria elimination program management guide (HR guide).
- Refine malaria surveillance system and scale fit for purpose.
- Identify strategies to address population mobility and malaria transmission.
- Expand community outreach campaigns and develop more nuanced, informative, and appealing messaging to educate communities about the importance of early treatment seeking and ACT course completion.
NEXT STEPS

This initial Ethiopia stakeholder analysis report and its supporting quantitative and qualitative data will serve as a baseline for PATH MACEPA’s ongoing analysis of the enabling environment for national malaria policy and implementation efforts. PATH MACEPA intends to conduct the next round of stakeholder analysis interviews in approximately two years’ time in order to examine changes in perceptions and prioritization of elimination over time. The findings from the stakeholder analysis report will be used to identify challenges and opportunities—technical, financial, and operational—to accelerate Ethiopia’ progress toward national elimination.

<table>
<thead>
<tr>
<th>EVIDENCE BASE</th>
<th>TOOL DEVELOPMENT</th>
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<tbody>
<tr>
<td>Sufficient data to support current strategy and approaches and/or to guide future policy changes.</td>
<td>Sufficient data to support current strategy and approaches and/or to guide future policy changes.</td>
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<tr>
<td><strong>STAKEHOLDER PERSPECTIVES: STRENGTHS</strong></td>
<td><strong>STAKEHOLDER PERSPECTIVES: AREAS FOR IMPROVEMENT</strong></td>
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<tr>
<td>• Robust evidence base for core malaria control interventions (LLINs and IRS for vector control and RDTs and ACTs for case management).</td>
<td>• Need further evidence on G6PD prevalence.</td>
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<td></td>
<td>• Need local safety and efficacy data for DHA-p.</td>
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<td></td>
<td>• Need further information about source-bridge-spreading dynamic by which population mobility can contribute to malaria transmission.</td>
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**STAKEHOLDER PERSPECTIVES: STRENGTHS**

- Robust evidence base for core malaria control interventions (LLINs and IRS for vector control and RDTs and ACTs for case management).
- Need further evidence on G6PD prevalence.
- Need local safety and efficacy data for DHA-p.
- Need further information about source-bridge-spreading dynamic by which population mobility can contribute to malaria transmission.

**STAKEHOLDER PERSPECTIVES: AREAS FOR IMPROVEMENT**

- Develop strategies to address source-bridge-spreading dynamic.
- Promote sharing of research studies results regarding use of DHA-p and strategies for transmission reduction and case investigation.

**RECOMMENDATIONS**

- Field test new tools and approaches for P. vivax elimination.
<table>
<thead>
<tr>
<th>ACRONYMS</th>
<th>DESCRIPTION</th>
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<tbody>
<tr>
<td>ACT</td>
<td>Artemisinin-based combination therapy</td>
</tr>
<tr>
<td>CCRDA</td>
<td>Consortium of Christian Relief and Development Association</td>
</tr>
<tr>
<td>DHA-P</td>
<td>Dihydroartemisin-piperaquine</td>
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<tr>
<td>EPHI</td>
<td>Ethiopian Public Health Institute</td>
</tr>
<tr>
<td>FMHACA</td>
<td>Food, Medicine, and Health Service Administration and Control Agency of Ethiopia</td>
</tr>
<tr>
<td>FMOH</td>
<td>Federal Ministry of Health</td>
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<tr>
<td>G6PD</td>
<td>Glucose-6-phosphate dehydrogenase deficiency</td>
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<tr>
<td>Global Fund</td>
<td>Global Fund to Fight AIDS, Tuberculosis and Malaria</td>
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<tr>
<td>HDA</td>
<td>Health Development Army</td>
</tr>
<tr>
<td>HEW</td>
<td>Health extension worker</td>
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<tr>
<td>ICAP</td>
<td>International Centre for AIDS Care and Treatment Programs</td>
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<tr>
<td>IRS</td>
<td>Indoor residual spraying</td>
</tr>
<tr>
<td>ITN</td>
<td>Insecticide-treated bed net</td>
</tr>
<tr>
<td>LLIN</td>
<td>Long-lasting insecticide-treated bed net</td>
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<tr>
<td>MACEPA</td>
<td>Malaria Control and Elimination Partnership in Africa</td>
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<td>MCST</td>
<td>Malaria Control Support Team</td>
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<tr>
<td>MDA</td>
<td>Mass drug administration</td>
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<td>MTAT</td>
<td>Mass test and treat</td>
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<tr>
<td>NGO</td>
<td>Nongovernmental organization</td>
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<td>NMA</td>
<td>National Meteorology Agency</td>
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<td>NMSP</td>
<td>National Malaria Strategic Plan</td>
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<td>PFSA</td>
<td>Pharmaceuticals Fund and Supplies Agency</td>
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<td>PHEM</td>
<td>Public Health Emergency Management</td>
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<td>PMI</td>
<td>President’s Malaria Initiative</td>
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<td>QA</td>
<td>Quality assurance</td>
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<td>QC</td>
<td>Quality control</td>
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<tr>
<td>RDT</td>
<td>Rapid diagnostic test</td>
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<tr>
<td>SA</td>
<td>Surveillance assistant</td>
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<tr>
<td>SUFE</td>
<td>Scale Up for Elimination</td>
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<tr>
<td>SUFI</td>
<td>Scale Up for Impact</td>
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<tr>
<td>USAID</td>
<td>United States Agency for International Development</td>
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<td>WHO</td>
<td>World Health Organization</td>
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I. PURPOSE

In support of Ethiopia’s Federal Ministry of Health (FMOH), the PATH Malaria Control and Elimination Partnership in Africa (MACEPA) has conducted a stakeholder analysis to assess the perceptions and prioritization of key stakeholders in malaria policy and implementation decision-making around readiness to introduce and scale new tools and approaches to accelerate efforts towards elimination.

This stakeholder analysis seeks to capture and share critical information to inform strategies that influence national policy and practice. This information will be useful to inform policies and plans to accelerate progress in reducing and eliminating the burden of malaria in Ethiopia, particularly to inform the plans and approaches for eliminating malaria in the 50 districts included as a target in the current National Malaria Strategic Plan (NMSP) 2014–2020.

This report presents the results from the first stakeholder analysis in Ethiopia and serves as a baseline for future reports, assessments, and projects. Interviews will be conducted approximately every two years to measure change in stakeholder perceptions over time. Ultimately this information will be used to support the acceleration and scale up of interventions proven effective in achieving and maintaining malaria elimination in Ethiopia and sub-Saharan Africa.

II. BACKGROUND

Ethiopia has an estimated population of over 90 million with approximately 68 percent living in malaria risk areas. The country has made significant advances in reducing the malaria burden for its citizens through effective national and regional policy and planning efforts. National planning and strategy development take place within the FMOH and the Health Promotion and Disease Prevention General Directorate, while regional States are responsible for local planning and direct supervision of sub-regional health offices and facilities. At the local level, Health Extension Workers are trained to diagnose and treat malaria, supervise seasonal prevention campaign work, and support other community health activities (see chart on the following page).

In 2005, malaria control in Ethiopia was rapidly scaled up through the adoption of Scale Up For Impact (SUFI) and the switch to artemisinin-based combination therapy (ACT) as the first line treatment. These actions resulted in a marked reduction in malaria prevalence, related illness and deaths. The Government of Ethiopia has now set an ambitious goal of eliminating malaria in 50 districts by 2020. PATH MACEPA began working in Ethiopia in 2007, establishing a country partnership with the Government of Ethiopia to support Ethiopia’s malaria control activities and assist with the implementation of the country’s first Malaria Indicator Survey (MIS). In collaboration with the FMOH and other partners working to reduce the malaria burden in Ethiopia, PATH MACEPA has transitioned from an early focus as a developer and demonstrator of SUFI to a developer and demonstrator of Scale Up for Elimination (SUFE). In order to generate evidence about the most cost-effective strategies for accelerating toward malaria elimination, PATH MACEPA is supporting an elimination demonstration project that aims to establish and maintain malaria-free zones in Amhara National Regional State.

In addition, to better support the efforts of the Government of Ethiopia in its malaria elimination efforts, PATH MACEPA is working to generate the evidence to demonstrate that national and subnational malaria elimination is feasible in sub-Saharan Africa using existing tools, albeit in new ways, across a range of epidemiological and operational contexts.

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4 Ibid.
INTRODUCTION

The primary objective of this analysis was to systematically gather and analyze data to assess the perceptions and priorities of key stakeholders in malaria policy and implementation decision-making in Ethiopia around malaria reduction and elimination efforts. This analysis included a specific examination of stakeholder perceptions of the following two areas:


2. Necessary actions to build upon the successes and to address any gaps in Ethiopia’s malaria reduction and elimination efforts, specifically in the areas of policy, governance, financing, planning and operations, evidence base, and tool development.

The methodology used for this stakeholder analysis was adapted from Kammi Schmeer’s Guidelines for Conducting a Stakeholder Analysis, created by Partnerships for Health Reform, a document created to guide health sector policy actors through an objective and systematic process for collecting and analyzing data about key stakeholders influencing a specific policy. Schmeer’s guidelines and tools provided an

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adaptable framework for the stakeholder analysis process. Stakeholder analysis planning, data collection, and analysis were conducted by the PATH MACEPA and the assessment team.

STAKEHOLDER IDENTIFICATION

For the purposes of this assessment, stakeholders were defined as key external and in-country actors in organizations based in Ethiopia with a vested interest in malaria policy and/or malaria program implementation. The PATH MACEPA Ethiopia office facilitated the identification of stakeholders. This project was endorsed by the FMOH, and stakeholder organizations were asked to participate on behalf of both PATH MACEPA and the FMOH.

Upon identification of respondent categories, PATH MACEPA sent letters to priority organizations explaining the stakeholder analysis objectives and approach and requesting interviews with key organizational representatives, including individuals in leadership and technical roles supporting national malaria efforts. Overall, stakeholders from five stakeholder groups were approached.

Stakeholders were identified and selected from the following four categories:

• **Decision-makers**, including national government representatives (from the FMOH, Ministry of Finance, etc.) and donors (country representatives of multilateral and bilateral donor agencies). Decision-makers have the ability to directly or indirectly impact the design of the NMSP.

• **Implementers**, including representatives from the NMCP, relevant working groups, private sector actors, academic/research institutions, faith-based organizations, and other nongovernmental organization (NGO) implementing partners. Implementers play a crucial role in planning and executing the NMSP.

• **Adopters**, including regional and lower level government and community representatives. Adopters play a critical role in the implementation and realization of the NMSP at subnational levels.

• **National Regulatory representatives**, who ensure the safety and effectiveness of antimalarial medicines, diagnostic tests, and other malaria control tools.

The 34 interviews provided a broad representation of stakeholder categories engaged in malaria policy and implementation in Ethiopia. Decision-making stakeholders accounted for nine of the interviews and came from a mix of government and donor organizations. Representatives from the FMOH included the Malaria Control Support Team (MCST). The MCST provides technical assistance to the Ethiopian national government and regional Health Bureaus and supports resource mobilization and malaria activity coordination. FMOH representatives also included national level health bureaus, as well as regional health bureau representatives included under the adopters’ stakeholder category. FMOH national and regional health bureaus are responsible for health sector leadership, including policy initiation and implementation and overseeing necessary research.

In addition to FMOH regional health bureaus, the adopters’ stakeholder category also included regional, district, and zonal health management teams. Due to a highly decentralized health sector, decision-making powers, processes, duties, and responsibilities are shared across government offices at different levels—from the federal level to regional levels and even further down to district (woreda) levels. The FMOH and the regional health bureaus focus primarily on policy and technical support issues, while regional, zonal,
district, and primary health management teams manage and coordinate the operation of the district health system under their respective jurisdictions.

The Implementers’ category included a broad range of civil society stakeholders, both secular and religiously affiliated, including international and local implementing NGOs and research organizations. This category also included private sector organizations.

The Regulators category represented our smallest group, with only one stakeholder interview.

For a full list of stakeholder organizations interviewed, see Appendix 2: Stakeholder Overview.

DATA COLLECTION

Qualitative informant interviews

Semi-structured informant interviews were conducted in Ethiopia over a period of two weeks in November 2014 in Addis Ababa and in Amhara Region. The interviews were conducted by two interviewers: one lead interviewer and one note-taker. Amharic–English translators were used for seven interviews.

Semi-structured interview scripts with open-ended questions were developed in advance of the interview process and were tailored specifically to each stakeholder category. Interview scripts were vetted with the Ethiopia PATH MACEPA team and were pre-tested within the country. During the stakeholder interviews, probes and follow-up questions were used by the interviewing team as needed to capture a sufficient level of detail.

The Bill and Melinda Gates Foundation has developed an analytical framework positing that six “building blocks”—policy, governance, financing, planning and operations, tool development, and evidence base—must align to create a critical pathway towards malaria elimination. The building block framework was used to organize and analyze the content from the stakeholder interviews. Using the building blocks, stakeholder perspectives were coded across the following six categories:

- **POLICY**: A supportive policy environment to facilitate the introduction of new approaches and strategies for malaria parasite elimination as a part of the national strategy. Sufficient data, knowledge, and access to information for decision-makers to sufficiently support changes in policy, strategy, and guidance on malaria efforts.

- **GOVERNANCE**: Sense of national ownership and commitment to the country’s malaria initiatives. Defined architecture to ensure coordinated planning and implementation. The exercise of political, economic, and administrative authorities in the management of malaria efforts at all levels. Support or engagement in regional collaboration and cross-border initiatives focused on malaria.

- **FINANCING**: Long-term commitment of domestic funds from national programs for malaria efforts. External donor willingness to support approved tools and interventions. Sufficient access to information needed by donors to make empowered decisions. General understanding of total cost required for effectiveness.

- **PLANNING AND OPERATIONS**: Mise en place, de l'infrastructure et des ressources humaines pour mettre en œuvre la lutte antipaludique et les efforts d'élimination. Plans spécifiques pour l'intensification de nouvelles approches, des produits et des stratégies. Calendrier réaliste pour la mise à l'échelle nationale.

- **EVIDENCE BASE**: Données suffisantes pour soutenir la stratégie et les approches actuelles et / ou pour guider les futurs changements politiques.

- **TOOL DEVELOPMENT**: Necessary product development for new tools.

For a full list of interview questions by stakeholder category, see Appendix 1, Stakeholder interview questions.

Confidentiality guarantee

From the outset, total confidentiality of all stakeholder responses was guaranteed in order to encourage honest and open responses. Each stakeholder heard a standard, pre-approved introduction about the interview process and provided verbal consent before beginning the interview. Although individual responses are highlighted in the report, any direct identifying information is excluded. Any identifying information collected was not shared beyond the PATH MACEPA interview and assessment team.

All information collected during stakeholder interviews, was stored securely in password protected files. Interview participants were given the option to decline audio recording. Only the assessment team had access to these recordings. Once content review and analysis was complete the recordings were de-identified and erased.
Stakeholder interviews provided a richly detailed and largely positive image of malaria efforts in Ethiopia, indicating high levels of professionalism and engagement among malaria stakeholders. Respondents were largely supportive of the strategic direction and leadership of Ethiopia’s malaria efforts and provided a hopeful outlook on the possibility of future elimination of malaria in Ethiopia.

All stakeholder interviews included a general discussion of malaria efforts in Ethiopia with each stakeholder identifying top successes and opportunities. Interviews were analyzed and coded against the analytical framework developed by BMGF of critical building blocks for elimination—policy, governance, financing, planning and operations, tool development, and evidence base. Stakeholder perspectives on the major successes and challenges faced in Ethiopia’s malaria efforts are summarized in the following section aligned to the six building block categories.

**POLICY**

The policy building block refers to a supportive policy environment and an existing framework to facilitate national decision-making, particularly data, knowledge, and access to information for decision-makers to sufficiently support changes in policy, strategy, and guidance on malaria efforts.

Stakeholders provided a variety of perspectives on the current policy environment in Ethiopia, focused on the goals and targets set out in the NMSP. Overall, stakeholders were very supportive of the NMSP and the FMOH’s role in guiding national policy for malaria efforts. Stakeholder perspectives diverged on the feasibility of the subnational elimination target and what would be needed to support the achievement of 50 malaria-free districts by 2020.

**National Malaria Strategic Plan**

Multiple NMSPs have been made in Ethiopia over the last decade: 2001–2005, 2006–2010, and 2010–2013. The current NMSP (2014–2020) focuses on transitioning from malaria control to malaria pre-elimination/elimination in Ethiopia.7

Ethiopia’s NMSP (2014–2020) includes the following goals:

- By 2020: To achieve near-zero malaria deaths (no more than one confirmed malaria death per 100,000 population at risk) in Ethiopia.
- By 2020: To reduce malaria cases by 75 percent from the 2013 baseline.
- By 2020: To eliminate malaria in selected low transmission areas.

**NMSP elimination target overview**

The NMSP elimination goal, to eliminate malaria in selected low transmission areas, is linked to the following objective: “by 2020, achieve and sustain zero indigenous transmission of malaria in 50 selected districts.”8 The NMSP 2014–2020 specifies the following minimum criteria for selecting districts for the elimination:

- Areas with low malaria transmission;
- Relative availability of district level surveillance data, as this will enable a more complete assessment of malaria pre-and post-intervention;
- With currently high coverage of vector control interventions and adequate access to treatment;
- Less cross-border population movement and a low internal immigration rate from well-identified endemic areas;
- Logistical feasibility and accessibility to make interventions and maintain anti-malaria commodities.

Key interventions to achieve elimination described by the plan include: optimizing available interventions; national to community level engagement—including addressing national governance and engaging provincial and district structures in

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8 Ibid.
support of community action; building and strengthening transmission reduction strategies; measuring and tracking transmission, its reduction, and evaluating progress to inform ongoing planning; and finally, information systems gathering.

Stakeholder perspectives on the NMSP elimination target

Stakeholder familiarity of the NMSP elimination target ranged from a strong understanding to never having heard of the NMSP or the elimination target. Stakeholders were provided with the NMSP (2014–2020) goals during their interviews as needed to discuss their perspectives.

Overall, while stakeholders were supportive of the NMSP, their perspectives differed on the feasibility of the elimination goal and timeline for its achievement. Ten stakeholders strongly supported the elimination target, many of them believing that eliminating malaria in 50 selected districts by 2020 was feasible as long as current efforts continue and people remain committed to their responsibilities. Optimism around the feasibility of the target was particularly driven by past and current successes, including: strategies and interventions leading to a reduction in mortality, technical guidance and support from partners, behavior change in the population, general prioritization of health and leadership of the government compared to a decade ago, and financial support from international donors.

Malaria cannot be controlled. We have tried to control malaria for 100 years. Even if it can be under control, it remains a public health problem if not eliminated.

-Decision-maker stakeholder

Seven stakeholders were supportive of the elimination target in the NMSP, but were less convinced that it would be feasible by 2020. These stakeholders mentioned gaps that needed to be addressed for elimination to be possible, including: policy gaps (e.g. criteria for selecting the 50 districts), coordination across all partners, including civil society organizations (CSOs), better understanding of the impact of climate on transmission, and establishing an effective strategy for Plasmodium vivax (P. vivax).

Four stakeholders were not convinced that elimination in 50 districts was feasible by 2020. They noted the fluid nature of malaria, the need for increased numbers of health extension workers (HEWs), and the importance of first accelerating control and moving into pre-elimination before jumping to elimination activities. This group included two decision-maker stakeholders: one was skeptical that elimination was feasible but still believed that it should be attempted because something could be learned from these efforts. The other decision-maker stakeholder believed that elimination was an overly-optimistic goal and that it would be a mistake for the global community to focus on elimination before mastering pre-elimination.

Stakeholder recommendations for NMSP elimination target

Stakeholders identified several elements critical to implementation efforts towards the NMSP elimination target, including developing the selection criteria for the 50 districts and the strategy to address P. vivax.

Selection criteria for 50 elimination districts

The selection of 50 districts for the elimination target was a major concern across all stakeholders, particularly those more knowledgeable about the NMSP. Stakeholders questioned the selected target number of 50 — many felt this was an arbitrary rather than a strategically chosen number. One stakeholder shared that the initial number proposed by the FMOH was higher and later lowered to 50 after receiving pushback. According to this stakeholder, the number 50 was a compromise.

Stakeholders also voiced concern over the selection criteria for the 50 districts. In the past, the President’s Malaria Initiative (PMI) and UNICEF attempted to pilot a malaria elimination program in Oromia, a zone in Ethiopia’s Amhara region, which was unsuccessful because the selected districts were surrounded by other high-transmission districts and malaria was quickly reintroduced. Stakeholders thus recommended that the criteria for selecting the 50 districts should be strategically developed and clearly documented. Most stakeholders felt that the target 50 districts should be in low transmission areas with strong leadership, proven community commitment, and located in close proximity to other selected districts in order to leverage resources and reduce chances of imported cases—i.e. districts considered ‘low-hanging fruit’ allowing for easy success.

One decision-maker stakeholder voiced concern with this approach, feeling strongly that strategically targeting only ‘low-hanging fruit’ would be inequitable. This stakeholder pointed out that investing resources in low transmission areas meant fewer resources and further suffering in areas with a higher malaria burden.

Inclusion of P. vivax in NMSP elimination target

Stakeholders debated whether the NMSP should address districts where P. vivax was prominent in addition to districts primarily with Plasmodium falciparum (P. falciparum). Decision-maker stakeholders in general held a higher level of knowledge regarding the technical differences and challenges in addressing both P. falciparum and P. vivax. However,
stakeholders across all groups shared varying opinions on whether *P. vivax* dominant districts should be included.

Of the stakeholders that discussed *P. vivax*, the majority recommended only addressing *P. falciparum* at this stage, in order to be more strategic in achieving the NMSP goal. Several stakeholders discussed a staggered approach, ramping up efforts on *P. vivax* once new strategies and tools are in place. One stakeholder mentioned the need for a new strategy introducing primaquine for radical cure of *P. vivax*. It was noted that because glucose-6-phosphate dehydrogenase deficiency (G6PD) prevalence studies are almost complete, this may soon be possible.

**Updates to National Treatment Guidelines**

A number of stakeholders mentioned specific revisions that should be made to Ethiopia’s National Treatment Guidelines. Multiple stakeholders said that inclusion of primaquine for all *P. vivax* infections is critically important. A few respondents also recommended the addition of intermittent preventive treatment of malaria in pregnancy (IPTp) to the treatment guidelines, especially for high transmission areas. The addition of single low-dose primaquine for radical cure of *P. falciparum* and dihydroartemisinin-piperaquine (DHA-P) for its longer acting prophylactic effect were also mentioned by some respondents as important tools for inclusion in the National Treatment Guidelines, especially needed to achieve the national elimination target.

Stakeholders acknowledged that effective governance is a critical foundation for accelerating Ethiopia’s efforts to eliminate malaria. They identified the reach of the health system and strong central management as key parts of the malaria management architecture that have enabled their progress to date. Necessary improvements and additions to bolster the current management architecture for malaria were also identified, including strengthening the link between national policy and local implementation, enhancing mechanisms for collaboration with the FMOH in policy development and decision-making, and augmenting the management capacity of the FMOH to drive malaria control and elimination efforts.

**GOVERNANCE**

**Partnership and collaboration**

Over half of stakeholders cited partnerships and coordination as a major success factor in addressing malaria. One stakeholder shared that the FMOH is good at collaborating across regions and actually listening to important needs. However, many stakeholders also discussed how partnerships and collaboration could be strengthened. Partnership improvements are needed within the health system, across various levels of government, and with funders, NGOs, the private sector, and research institutions. One stakeholder cited the need for a strong platform to manage efforts because currently they are inconsistent and informal. Four stakeholders spoke about the need for closer, formalized collaboration between FMOH and its partners.

*The Minister of Health is the key stakeholder; you know you have (FMOH) commitment by what their program staff say, speeches they give, reports, etc. The FMOH receives a 5 on commitment, 5 being the highest.*

-Decision-maker stakeholder comments

**Partner and Federal capacity**

While many respondents emphasized that political and partner commitment to the NMSP’s malaria elimination targets is relatively high, others identified gaps in the management structure for malaria at the national levels that could have a negative impact on Ethiopia’s implementation of the NMSP. One decision-maker stakeholder was “highly worried” about leadership on malaria issues at the national level, and described raising concerns with the government about the need to increase training and empower staff at the FMOH. Another decision-maker felt that program management skills need to be strengthened and said that improving governance and management will require government commitment.

An implanenter stakeholder noted that the “strong” FMOH malaria teams of the past had been dissolved and their members had become part of neglected diseases teams. Another implementer said that high staff turnover at all levels, but especially at the FMOH, was reducing health system effectiveness. Noting the same issues of less experienced FMOH staff and high turnover, a decision-maker stakeholder stated that training for FMOH staff is “critical.”
An implementer stakeholder stated that additional “clinical training” would also be valuable for FMOH staff.

Several stakeholders questioned the government’s capacity to implement a strategy aimed at subnational or national malaria elimination. One implementer stated that political commitment for malaria elimination is strong but that it was unclear if Ethiopia was “ready” for implementation.

**National planning to local implementation**

Stakeholders overwhelmingly believed that strong leadership is critical for successful management and implementation of the NMSP. While many stakeholders acknowledged the high level of political commitment to the malaria goals, some expressed concern over a possible lack of leadership across all levels to implement these goals. One stakeholder noted that while Ethiopia has great policies, there is often poor implementation.

*Policy might look ideal but we are cautiously optimistic about implementation. From the federal to district levels, are there enough leaders, capabilities and resources for implementation?*

-**Decision-maker stakeholder**

Most stakeholders praised the FMOH’s leadership efforts for malaria. Some stakeholders emphasized that commitment could be stronger at lower levels, from regional to community levels. Several stakeholders also pointed out that commitment to malaria elimination at regional and local levels of government is also important and that more is required. One stakeholder pointed to regional, zonal, and district leaders as key to establishing the governance infrastructure to prioritize malaria. One stakeholder discussed the need for flexibility in approach based on local contexts. Many stakeholders felt that human resources will need to be strengthened at the regional and district levels to support implementation of malaria elimination efforts. One decision-maker stakeholder said that human resources for elimination need to be improved by translating commitments at the federal level to the district level.

**Donor collaboration**

Stakeholders also discussed the need for strong collaboration with and between donors. Some stakeholders believed the FMOH should take responsibility for coordinating between donors to ensure funds effectively supported NMSP priorities, rather than donor agendas. Stakeholders also mentioned the need for donors to collaborate with one another, one example cited was the Global Fund only working directly with the government.

**Increased collaboration between government agencies**

Several stakeholders discussed specific collaboration challenges across government agencies. For example, the Food, Medicine, and Health Service Administration and Control Agency of Ethiopia (FMHACA) was not involved in the NMSP drafting process, yet several stakeholders believed it should have been. One stakeholder voiced concern that FMHACA, Ethiopian Public Health Institute (EPHI), and Pharmaceuticals Fund and Supply Agency (PFSA) all do many things independently when responsibility, data, and lessons should be shared collaboratively across all parties. One stakeholder felt that the FMOH could do a better job of communicating with and managing these partners and their efforts.

**Increased CSO and NGO involvement**

Increased collaboration across implementers was also discussed as a need. Stakeholders praised CSOs and NGOs for filling critical implementation gaps; many believed that the FMOH should involve CSOs and NGOs even further in malaria efforts.

**Research partnerships**

One implementer stakeholder shared disappointment at the low level of involvement of academic researchers in malaria efforts. This stakeholder said that there is no collaboration between the FMOH and regional universities; instead FMOH conducts its own research through EPHI, resulting in a duplication of efforts. Another implementer stakeholder stated exactly the opposite, sharing that universities are involved with the FMOH research agenda and that efforts are going well.
Financing of malaria activities was an important topic discussed by the majority of stakeholders. Stakeholders provided perspectives on the funding allocation approach as well as funding by sector including external donor financing, national financing, and private sector financing.

Stakeholders described increasing donor and domestic funding as a major driver of Ethiopia’s success in reducing its malaria burden in recent years. Yet some stakeholders stressed that financing gaps still exist, noting that these gaps could grow if Ethiopia adopts a more ambitious elimination agenda. Many respondents emphasized that donor and domestic financing has to be adequate and well-coordinated to achieve elimination targets.

**Donor financing**
Stakeholders said that increased donor interest and funding support have contributed to Ethiopia’s successes in the fight against malaria in the last decade and will be a necessary enabling factor for efforts to accelerate towards elimination. Many emphasized that continued donor and domestic commitment is critical, especially in the pre-elimination and elimination stages.

*Things are different in Ethiopia. If the FMOH wants to do something, donors will follow.*

- Decision-maker stakeholder

**Ensuring sustainable and predictable donor funding**
Several stakeholders mentioned the importance of consistent and predictable donor funding support. A decision-maker stakeholder recommended that international donors should commit funding for longer time periods—“20, 30 or 60 years”—to improve planning and increase financial predictability. An adopter stakeholder suggested that the international donors should look more closely at subnational needs for malaria control activities. This respondent thought that international donors do not always have “a good eye” for local needs, sometimes funding other disease programs even when the malaria burden is a more pressing challenge locally.

**Identifying funding sources for malaria elimination**
Two stakeholders noted that rising donor interest in recent years has helped reduce the malaria burden in Ethiopia but that large resource gaps remain. Several said that the technical and operational resources required for malaria elimination activities may require increased funding, at least in the short term. Three stakeholders noted that additional funding will be necessary to drive towards elimination. Several stakeholders mentioned that PMI (which did not include malaria elimination as a specific strategic objective during the time of this interview) can still help “fill in gaps” as part of a malaria control strategy. PMI funding and technical support, even if oriented towards malaria control activities, can still help set the stage for malaria elimination activities and should be integrated with other stakeholder activities explicitly aimed at malaria elimination.

**Domestic financing**
Stakeholders noted that increasing domestic funding for malaria in the last decade has helped reduce the malaria burden in Ethiopia. One stakeholder said that the government is making a “huge commitment” to malaria reduction efforts, including support for the HEW program. Nonetheless, several stakeholders expressed concern that domestic financing would be insufficient for elimination activities, even with continuing international donor support. There was concern expressed about securing funding to finance the “last mile” of elimination, when resource requirements can temporarily spike. An implementer stakeholder felt that the national government has “competing priorities” but that the government would spend more on malaria if donor funding decreased due to the potentially devastating consequences of malaria resurgence.

Planning and operations refers to the support structure of human resources, health system capacity, logistics, and infrastructure that is needed to implement current and future iterations of Ethiopia’s NMSP. The greatest challenges discussed by stakeholders fell within the planning and operations block category. Although many stakeholders felt that political commitment to the NMSP malaria objectives is
Many stakeholders stated that the scale up of malaria control interventions and the implementation of proven approaches has been a driver of success in recent years. At the same time, stakeholders pointed to persisting gaps in planning and operations, particularly in the area of health system capacity and community engagement. Stakeholders mentioned repeatedly that these gaps need to be addressed as the country move towards a malaria elimination agenda.

Optimization of current interventions

Vector control

Indoor residual spraying (IRS)
Many stakeholders emphasized the large role played by IRS in Ethiopia’s effort to control malaria. A decision-maker stakeholder noted that vector control measures such as IRS are emphasized in Ethiopia’s current malaria control program. An implementer stakeholder said that the “current perception” is that IRS is the best method for moving towards elimination, stating that he himself believes that IRS is a critical tool for reducing malaria. A community health worker thought that IRS is essential for clearing malaria parasites, presumably by killing the mosquito vector.

Some stakeholders felt that the government’s system for IRS implementation and effectiveness monitoring was insufficient, especially for moving towards elimination. One implementer stakeholder said that IRS coverage was dropping and that efforts needed to be made to increase coverage. A decision-maker stakeholder felt that vector control measures such as IRS are “critical” but are not currently well implemented. An adopter stakeholder with experience in IRS campaigns stated that IRS should occur under the auspices of strong district-level programs, which are currently absent. In the absence of strong district level leadership and programmatic support, the respondent believed that IRS activities should be decentralized to local communities. Community health workers such as HEWS are well positioned to support IRS campaigns because they are knowledgeable about their communities and can gain the trust of their neighbors more easily, in part because they may be more careful in spraying their neighbors’ homes. This same respondent felt that inadequate monitoring and evaluation was hindering attempts to assess IRS’s contribution to malaria control efforts.

Bednets (ITNs/LLINs)
Stakeholders reported varying levels of bednet coverage and level of usage. An implementer stakeholder in Amhara region estimated that up to 90 percent of the region’s inhabitants are now sleeping under insecticide-treated bed nets (ITNs). The estimate of 90 percent effective coverage for ITNs was put forward by another implementer stakeholder in Amhara as well. Another stakeholder in Amhara agreed that long-lasting insecticide-treated bed net (LLIN) coverage and use is better than in previous years, attributing success to better distribution efforts and a growing awareness in the community about proper bednet use.

Nevertheless, a number of stakeholders reported continuing issues with LLIN coverage and usage. Two stakeholders felt that LLINs were not being replaced on time. Several other respondents said that some community members still do not use bednets correctly, or at all. An implementer stakeholder felt that bednet coverage is good but that community awareness about proper use is still low. Another implementer stakeholder identified misuse of LLINs as a continuing problem. Poor bednet coverage and use among migrant workers was highlighted as a particular challenge.

Environmental management for vector control
Several respondents called for more aggressive environmental management to reduce the mosquito population in malarious areas. In at least some communities, environmental management appears to be viewed as a critical and underutilized vector control intervention. An implementer stakeholder in Amhara related how the local community carried out larval control measures every Friday, encouraged by the Health Development Army (HDA). Another stakeholder said that better environmental management of breeding sites in canals and other water projects is needed at the community level. An adopter stakeholder felt that the community needed to be more involved in managing stagnant water sources such as water collection sources and sacred water sites.

Case management
Diagnostics

Rapid diagnostic tests (RDTs)
Stakeholder responses conflicted concerning the quality and supply of RDTs. Two stakeholders stated that RDT supply and quality is satisfactory. An implementer stakeholder in Amhara reported that RDTs were in good supply and that their quality was good, enabling the detection of malaria “immediately.” Another stakeholder felt that current RDTs were “good enough for elimination.” This respondent said
that RDT availability is sufficient and that Ethiopia’s “success story” in the campaign against malaria is at least in part due to wider RDT testing of suspected malaria cases and the development of a multispecies RDT.

But other respondents mentioned continuing RDT stockouts and quality concerns. Five stakeholders, including two decision-makers and one implementer, said that RDT stockouts are still a challenge. Other stakeholders raised concerns about the sensitivity and specificity of the RDTs in use. An adopter stakeholder said that RDT specificity “has been an issue,” with RDTs sometimes providing false positives for both *P. falciparum* and *P. vivax*. An implementer stakeholder in Amhara said that RDTs were sometimes producing false negatives, making it necessary to repeat RDT testing to diagnose malaria accurately. This respondent reported that RDT kits were sometimes incomplete, with individual components such as the needle or buffer absent. An adopter stakeholder cautioned that while RDTs are supplied by Ethiopia’s PFSA, many different RDT brands can be found at district level health facilities.

**Microscopy**

Several stakeholders felt that equipment shortages and skills gaps were hampering the correct and timely diagnosis of malaria using microscopy, with one stating flatly that microscopy is “not working.” An adopter stakeholder said that access to working microscopes and reagents is limited. Two stakeholders felt that microscopy capacity could be improved if lab technicians were provided with more extensive training. Another respondent said that RDTs are preferable to microscopy due to the current low levels of microscopy training and capacity.

**Treatment**

**Intermittent preventive treatment of malaria in pregnancy (IPTp)**

A few stakeholders recommended the implementation of IPTp, which is not in Ethiopia’s National Treatment Guidelines. A decision-maker stakeholder felt that IPTp should be implemented, with a focus on high malaria transmission areas. An implementer stakeholder noted that the drugs used for IPTp are not currently available.

**Human Resources**

Stakeholders overwhelmingly described health system capacity gaps as a major challenge. While many described the community health worker system—and in particular the added reach provided by HEWs and the HDA—as a success factor in malaria control efforts, its capacity to implement an ambitious elimination agenda was questioned. Increasing human resource capacity was one of the most cited recommendations for improving the planning and operational capabilities to accelerate towards elimination. But there were divergent viewpoints about the location of the most significant gaps in human resources. Some respondents described manpower and training gaps at all levels of the health system, while others identified certain health occupations or administrative levels as having particular challenges.

One stakeholder thought that human resources are sufficient for malaria control efforts but that additional personnel are necessary to shift towards elimination. An implementer stakeholder had a similar view at the regional level, reporting that more technically competent staff are needed to provide technical assistance to address the challenges faced by districts working to eliminate malaria. An implementer stakeholder stressed the need for skilled, diversified medical personnel with appropriate technical skills—such as epidemiologists and entomologists.

Several stakeholders thought that local health system capacity could be strengthened through improvements to the HEW program. Some felt that there are not enough HEWs, while others thought that there are enough HEWs but that their training needs to be improved. Several stakeholders characterized HEWs as “overstretched” or “overworked,” with several mentioning a plan to hire an additional HEW for each village. Two respondents believed that low education levels among HEWs hampers their effectiveness and reinforces the need to provide sufficient training. An implementer stakeholder felt that current training was insufficient and suggested that refresher training focused on malaria should be provided twice a year. One respondent recommended that training programs for HEWs be expanded, while two others suggested that mechanisms be put in place to address the high rates of attrition among medical personnel at all levels of the Ethiopian health care system. An adopter stakeholder emphasized that malaria elimination activities require a strong human resources structure at the national level as well as at the local and regional levels. Otherwise, the local health system and HEWs will be given an unreasonably large role in malaria elimination.

**Health center capacity**

Many stakeholders highlighted the need to increase staffing and technical skill levels at Health Centers. An implementer stakeholder stated that health centers are understaffed, with health professional supply outstripped by demand. This respondent felt that demand in the malaria elimination phase would put even greater pressure on limited human resources at health centers. Other implementers echoed the view that human resources shortages were limiting Health Center performance. One said that Health Centers needed “more and
better” health professionals, and that training for lab technicians needed to be expanded. This respondent said that the Health Center health officers and nurses should be better trained in diagnosing malaria, and that the need for more personnel would be especially pronounced if malaria elimination is targeted as a goal. An adopter stakeholder said that Health Center capacity is “very poor,” especially for severe and complicated malaria. Another adopter stakeholder recommended that each district be assigned a malaria specialist to address these skills and human resources gaps. A decision-maker stakeholder felt that Health Center personnel needed to focus more on malaria prevention.

Community engagement

Many stakeholders emphasized that the HEW and HDA programs had extended the reach of Ethiopia’s health system and encouraged health-promoting behavior for malaria prevention and treatment. As one adopter stakeholder pointed out, “elimination requires community participation” and “elimination would not have been possible” before the introduction of the HEW program. Many respondents agreed that community engagement should be increased, especially for districts targeted for elimination. An adopter stakeholder thought that hiring more HEWs and providing retention incentives might improve community engagement. Other respondents, agreed that local health workers such as HEWs and HDA members could contribute to advocacy efforts and community engagement activities more.

Improving community awareness

Many stakeholders emphasized that community awareness about the correct use of malaria prevention tools and appropriate care seeking was still too limited. An adopter stakeholder felt that that diminishing malaria burden had allowed people to be less careful and attentive about using malaria prevention tools.

Several stakeholders stressed that some community members needed to be better educated about timely and appropriate treatment seeking for malaria. Three respondents said that too often community members were still waiting to seek treatment even after suffering potential symptoms of malaria, stressing the need to increase education about the benefits of seeking early treatment.

Some stakeholders described challenges with ensuring adherence to drug regimens in the community, but this belief was not shared among all respondents. Two respondents stated that community compliance was not a significant challenge, with one respondent stressing that HEWs are required to actively verify that individuals infected with malaria have taken their full course of antimalarial drugs. But one adopter stakeholder did think that treatment compliance was still an issue, with some individuals still not finishing full drug courses. Another adopter stakeholder felt that medical personnel were struggling with the administration of injectable artesunate in cases of severe malaria. Two respondents thought that there was still a “culture” of community members wanting to receive antimalarial drugs even after a negative RDT result.

Stakeholders made several suggestions to improve community engagement around efforts to control and eliminate malaria. Two respondents felt that malaria education at schools was key. These same two respondents stressed that HDA members should be well trained to educate the community about malaria prevention and treatment. One of the two thought that religious leaders can increase community awareness because of their ability to share public health messages with community members. An implementer stakeholder stated that BCC and health access campaigns needed to be improved for migrant populations without regular access to a health facility.

Supply chain and logistics

Many stakeholders described serious logistics and supply chain challenges that could limit the operational feasibility of Ethiopia’s malaria control and elimination efforts. The challenges described were varied, and include weak infrastructure (power, water, and roads), limited distribution networks, inadequate health facility storage and equipment, and RDT and drug supply concerns. Respondents often focused on those particular challenges with which they had direct experience, but these challenges likely overlap and exacerbate each other in the day to day implementation of Ethiopia’s malaria control and elimination.

Logistics

A decision-maker stakeholder stated that a weak logistics system was hampering malaria treatment and diagnosis at the village level. Unreliable electricity was mentioned by several respondents as a major part of this challenge. An implementer described how constant power interruptions make it difficult to recharge the mobile phones used to collect malaria indicator data. Another implementer said that power outages were “frequent” and that at least one health center lacks access to water.

Supply chain management

Numerous respondents stated that supply chain management is a major challenge, exacerbated in particular by weak infrastructure and inadequate transportation. Three respondents stated that malaria commodities are sometimes stocked out, and another respondent reported that ACTs at a health facility were close to expiration. An adopter stakeholder said that commodity resupply requests from local...
or district health facilities were not always timely, which could potentially result in stockouts. A decision-maker stakeholder felt that distribution remains a “huge challenge,” with weak accounting, control and information systems leading to potential stockouts at the district level. This respondent noted that the PFSA may only supply health centers once every six months.

Many stakeholders emphasized that limited transportation for the distribution of malaria commodities is a major challenge. As one respondent pointed out, it’s often the high malaria transmission zones that are inaccessible due to poor roads. Two stakeholders noted that insufficient transportation and poor roads can produce drug stockouts at district and village levels even if sufficient drugs have been procured. One implementer said that even when drugs arrive at health centers the lack of transportation options can prevent HEWs from transporting them back to their posts. The limited transportation options can make reporting on malaria indicators more difficult as well.

**Population movement**

Respondents across all stakeholder groups indicated that population movement is a critical issue to address within any elimination strategy for Ethiopia. Stakeholders working at the local level emphasized this issue in particular. Some described how areas that have seen a dramatic reduction in the malaria burden due to increasing prevention coverage and treatment access can suffer from rising malaria cases due to infected individuals from other areas importing new cases. In some low-lying areas of Ethiopia, construction projects and large plantations growing sugar, sesame, or other crops attract migrant workers from highland regions who may contract malaria and import it to their home regions.

**Population movement and potential intervention strategies**

Several respondents described how population movement can impact malaria transmission. An implementer explained how some migrant workers and others travelling from the highlands to the lowlands where malaria transmission intensity is higher return home with malaria infections and cause malaria to increase. Another implementer described how malaria transmission can be higher in areas with large development projects and sugar plantations using irrigation. Seasonal migrants seeking work at plantations or with other projects can produce epidemics, especially because they often don’t have access to prevention or treatment. This respondent estimated that “95 percent” of projects requiring temporary migrant labor are in high malaria intensity lowland regions. Another implementer noted that population movement is also linked to family relationships. Dispersed family members often travel back and forth between districts to visit loved ones and may bring the malaria parasite along with them.

When probed, stakeholders offered a number of recommendations to address the challenges that population movement pose to malaria elimination efforts. Suggestions included the establishment of temporary health clinics at workplace sites to increase access to preventive and treatment measures, increased screening for mobile populations, and additional vector protection suitable for mobile and night-shift workers. One implementer thought that methods have to be found to identify and screen individuals who are traveling from or into high malaria transmission areas, while an adopter stated that migrant workers needed to be periodically screened and treated while they were working on temporary or seasonal projects. Another adopter suggested that temporary health clinics be established for migrant workers on site at large farms, stating that this was actually a government rule that goes unenforced. This respondent observed that laborers typically go through a “resting room” on their way to and from the farms. It might be possible to test workers at the resting room and treat those who are infected with malaria. A stakeholder involved in IRS campaigns said that protecting migrant workers with spraying is challenging given the lack of suitable structures to spray. This respondent suggested that LLIN use be promoted as an alternative, or that personal repellent might have to be provided to migrant workers. Another stakeholder recommended that periodic health impact assessments be conducted for economic projects that require temporary workers, and that nearby health facilities should provide screening and treatment for migrant workers if necessary. This respondent also drew attention to dam construction projects with poor water drainage systems that hire temporary workers.

**Surveillance systems**

Stakeholders reported that malaria surveillance systems has improved in recent years, but that stronger and more reliable information systems would support elimination activities, which require intensive surveillance and tracking to promote rapid response to malaria cases.

**Current data reporting and surveillance strengths and gaps**

A decision-maker stakeholder spoke positively about the Public Health Emergency Management (PHEM) data collection system in use, noting that malaria data is now being reported weekly. An implementer stakeholder estimated that about 80 percent of malaria data in his region is being reported, as compared to less than 40 percent in the past. Another implementer also believed that the reporting system...
and data quality is fairly good, even though data reporting is still sometimes interrupted and a day of reporting missed.

Three respondents reported that the timeliness of data reporting is not always satisfactory. An implementer stakeholder praised the MACEPA model of rapid reporting using mobile phones, but was unsure if it would be scalable because of its financial and human resources requirements. Other respondents described gaps in data quality. An adopter reported that data reported from health posts and at the district levels is inconsistent, and felt that improving data systems should be the focus for the years to come. This respondent also thought that FMOH capacity needed to be expanded so that existing data could be used to build stratified risk maps to better track malaria epidemics. A decision-maker stakeholder suggested that daily reporting should replace weekly reporting at the health facility level in elimination districts.

**P. vivax strategies**

Many respondents believed that strategically addressing *P. vivax* in Ethiopia is critical for elimination. Although *P. vivax* is not as prevalent as *P. falciparum* in Ethiopia, some respondents warned about the consequences of not addressing it aggressively because of its more complex parasite lifecycle. Specifically, several stakeholders recommended that primaquine (PQ) be used for radical cure, although some mentioned concerns about treating patients without first testing for G6PD deficiency.

A decision-maker stakeholder said that it is critical to introduce primaquine to address *P. vivax* infections, arguing that the inclusion of primaquine treatment for *P. vivax* into policy guidance should be a priority. Another respondent mentioned that MIS data showing that 77 percent of malaria infections are due to *P. falciparum* is inaccurate and that *P. vivax* is much more widespread than that data suggests. Five respondents mentioned the special challenge posed by G6PD deficiency for prescribing primaquine to treat *P. vivax* infections. One respondent mentioned that studies were being conducted in Ethiopia to determine G6PD deficiency prevalence rates, while two respondents stated that G6PD testing should precede the prescription of primaquine for *P. vivax*. An implementer stakeholder noted that patient adherence is challenging with primaquine because of the fourteen-day treatment course.

However, two respondents stated that primaquine could be introduced more widely to treat *P. vivax* infections because G6PD deficiency does not exist in Ethiopia. One implementer said that there is “no issue” with G6PD deficiency in Ethiopia and that he had not seen a case of G6PD deficiency in all his career.

**Procurement and regulatory challenges**

Several respondents mentioned challenges with Ethiopia’s procurement and regulatory agencies—the PFSA and the FMHACA of Ethiopia, respectively.

**Procurement**

PFSA capacity is still considered to be limited in some areas despite previous capacity building efforts. An implementer stakeholder involved in malaria case management thought that PFSA standards should be increased for RDTs, arguing that procured RDTs meet WHO specifications but could be of higher specificity and sensitivity. An adopter thought that PFSA procurement for bednets and IRS supplies is typically adequate but that drug procurement can be more problematic. Another adopter stated that procurement policies need to be improved. Primers, reagents and other materials needed for research are often difficult to procure and sometime expire while waiting to clear customs. This respondent also thought that procurement policies put too much emphasis on low cost at the expense of quality.

**Regulatory**

One respondent argued that the FMHACA’s special “fast track” registration process for malaria drugs has been a success. This same respondent stressed that regulators should collect pharmacovigilance data on antimalarial drugs to ensure drug safety, mentioning that a national level regulatory team had been created to conduct pharmacovigilance studies. A number of challenges were mentioned in relation to the regulatory system including scarcity in skilled human resources, especially in pharmacovigilance, and high turnover of staff within the FMHACA, especially in the registration department.
Planning and operations refers to the support structure of human resources, health system capacity, logistics, and infrastructure that is needed to implement current and future iterations of Ethiopia’s NMSP. The greatest challenges discussed by stakeholders fell within the planning and operations building block category. Although many stakeholders felt that political commitment to the NMSP malaria objectives is high, several were concerned that planning and operations challenges could impede the translation of political commitment into the achievement of the NMSP.

Many stakeholders stated that the scale up of malaria control interventions and the implementation of proven approaches has been a driver of success in recent years. At the same time, stakeholders pointed to persisting gaps in planning and operations, particularly in the area of health system capacity and community engagement. Stakeholders mentioned repeatedly that these gaps need to be addressed as the country move towards a malaria elimination agenda.

**Drug introduction**

Several respondents emphasized that the introduction of new drugs requires a strong evidence base that includes local population data. A decision-maker stakeholder stated that the Health Minister and senior FMOH officials will approve new drugs if local data can brought forward as evidence. A national government official said that the FMOH is open to new evidence based tools, but that local population testing is needed because of the “local context.” This respondent said that DHA-P might be an “interesting innovation,” but emphasized that the EPHI would require local population data before approving its use in Ethiopia.

**Vector control**

Two respondents felt that more studies are needed to determine whether insecticide resistance is a significant problem in Ethiopia. One of these respondents mentioned that it is hard to undertake studies on pyrethroid resistance because of the lack of trained entomologists to conduct research.

**Radical cure for P. vivax**

Three respondents believed that additional evidence around G6PD deficiency prevalence in Ethiopia is needed to determine what tools are safe and effective. An adopter stakeholder noted that P. vivax incidence appears to be rising but that that could be due to higher detection rates as P. falciparum infections are falling.

**Population-wide approaches for transmission reduction**

Knowledge levels and levels of support for population-wide approaches to malaria elimination such as mass drug administration (MDA) or mass test and treat (MTAT) varied. Respondents expressed varying degrees of support for introduction into national policy and programming, while others felt more evidence was needed around the efficacy and safety of population-wide approaches before adoption into national policy.

Some respondents, especially those working at sub-national levels, displayed low levels of knowledge about population wide approaches. A subnational implementer, for example, knew about MACEPA’s population-wide project but did not know the “details” concerning population wide approaches. This respondent emphasized that “buy in” from subnational leadership from the regional and zonal levels to the community levels is required for approaches involving the participation of whole communities.

When probed, many respondents expressed support for the introduction of population-wide approaches in support of malaria elimination. As one decision-maker stakeholder stated, MDAs or MTATs are “not an option,” they are a “must” for elimination. Another decision-maker stakeholder felt that Ethiopia’s community health programs provide a “great foundation” for MDA or other population wide approaches, noting that previous MDA efforts had been hampered by a lack of human resources. An adopter stakeholder advised that focused BCC campaigns should precede the implementation of population-wide approaches. This respondent thought it was especially necessary with MDA campaigns to educate the community about why population-wide approaches are used in advance of implementation.
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**Vector control**

Two respondents mentioned that the development of outdoor vector control tools would help prevent malaria transmission from outdoor-biting mosquitoes. As addressed further in the Population movement subsection under Planning and operations, outdoor vector control tools would also help address the special challenges posed by mobile populations such as migrant workers who may be working at night or may lack access to bednets and IRS sprayed homes.

**Case management**

**Diagnostics**

A minority of stakeholders mentioned the need for improved RDT specificity and sensitivity. Five respondents stated that more sensitive diagnostics are needed to identify low density infections. One of these respondents noted that if Ethiopia moves toward elimination more emphasis should be put on sensitivity and specificity rather than on cost considerations. Two of these respondents believed that PCR or LAMP test methods should be studied further and potentially introduced more widely to allow the detection of the low density infections and the reduction of the asymptomatic reservoir.

Additionally, two stakeholders said that new diagnostics could help to reduce the *P. vivax* burden and address the challenge created by G6DP deficiency. An adopter stakeholder stated that a new diagnostic tool that diagnoses whether the *P. vivax* infection is new or the result of a relapse would be valuable.

**Drugs**

There were diverging opinions among stakeholders around the effectiveness of currently used antimalarial drugs and the need for new drugs. Two respondents highlighted the effectiveness of current or suggested that new drugs are not needed for malaria elimination activities. However, other respondents believed that new antimalarial drugs could strengthen Ethiopia’s malaria control efforts or help accelerate towards elimination.
The Ethiopia stakeholder analysis report and its supporting quantitative and qualitative data are meant to serve as a baseline for PATH MACEPA’s ongoing analysis of the enabling environment for national malaria policy and implementation efforts and to capture and share critical information to inform strategies that influence national policy and practice. This information will be useful to inform policies and plans to accelerate progress in reducing and eliminating the burden of malaria in Ethiopia, particularly to inform the implementation of the current NMSP and achievement of its elimination target by 2020.

PATH MACEPA intends to conduct the next round of stakeholder analysis interviews in approximately two years’ time in order to examine changes in perceptions and prioritization of elimination over time.

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<th>BUILDING BLOCKS</th>
<th>RECOMMENDATIONS</th>
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| Policy: A supportive policy environment and an existing framework to facilitate national decision-making. Sufficient data, knowledge, and access to information for decision-makers to sufficiently support changes in policy, strategy, and guidance on malaria efforts. | • Develop evidence-based criteria for selection of elimination districts.  
• Develop operational plan to guide implementation efforts in districts selected for elimination.  
• Revise National Treatment Guidelines to include DHA-p, a radical cure for P. vivax, Intermittent Preventive Treatment in Pregnancy (IPTp), and possibly single low dose Primaquine. |
| Governance: Sense of national ownership and commitment to the country’s malaria initiatives. Defined architecture to ensure coordinated planning and implementation. The exercise of political, economic, and administrative authorities in the management of malaria efforts at all levels. Support or engagement in regional collaboration and cross-border initiatives focused on malaria. | • Develop Terms of Reference (TORs) for elimination working group and maintain functioning of group to improve collaboration across sectors and support development and adoption of evidence-based plans for elimination.  
• Ensure representation of regional health bureaus in development of national policy and strategies to facilitate effective implementation at regional level. |
| Financing: Long-term commitment of domestic funds from national programs for malaria efforts. External donor willingness to support approved tools and interventions. General understanding of total cost required for effectiveness. | • Develop resource mobilization strategy for Ethiopia to align existing funding in support of NMSP goals and targets, and grow new sources of funding, with a specific focus on increasing domestic commitment. |
| Planning and Operations: Adequate manufacturing, infrastructure, and human resources to implement malaria control and elimination efforts. Specific plans for scale-up of new approaches, products, and strategies. Realistic timeline for country-wide implementation. | • Develop malaria elimination program management guide (HR guide).  
• Refine malaria surveillance system and scale fit for purpose.  
• Identify strategies to address population mobility and malaria transmission.  
• Expand community outreach campaigns and develop more nuanced, informative, and appealing messaging to educate communities about the importance of early treatment seeking and ACT course completion. |
| Evidence Base: Sufficient data to support current strategy and approaches and/or to guide future policy changes. | • Develop strategies to address source-bridge-spread dynamic.  
• Promote sharing of research studies results regarding use of DHA-p and strategies for transmission reduction and case investigation. |
| Tool Development: Necessary product development for new tools. | • Field test new tools and approaches for P. vivax elimination. |
Topic Guide A: Decision makers (donors, national government representatives)

Trying to assess level of commitment to national elimination targets, prioritization of malaria among other health and development efforts, understanding of technical and operational components of accelerating elimination, willingness to mobilize/commit financial and human and financial resources toward malaria elimination.

GOALS LISTED IN NMSP 2014–2020

- By 2020, to achieve near zero malaria deaths (no more than 1 confirmed malaria death per 100,000 population at risk) in Ethiopia.
- By 2020, to reduce malaria cases by 75 percent from baseline of 2013.
- By 2020, to eliminate malaria in selected low transmission areas.

1. What future actions do you now see to be necessary for progress toward Ethiopia’s malaria elimination goals?

2. How do you feel goals around malaria reduction/elimination rank in comparison to other health areas?
   a. Example: HIV, TB

3. What are the three highest priority challenges or opportunities your country/organization faces in the effort to greatly reduce and eliminate malaria?

4. What are you or your organization currently doing to address this challenge or take advantage of this opportunity?
   a. How well are these efforts working?
   b. How will you know you have been successful?

5. What future actions (by the MOH, implementing partners, and private sector) do you feel are necessary for progress towards (insert country) malaria elimination/reduction goals?

Topic Guide B: Regulatory and procurement (national regulatory agencies, national procurement committees/agencies)

Trying to assess level of understanding of technical and operational components of accelerating elimination, familiarity with newer drugs and approaches (i.e., DHA-P, ivermectin, sldPQ and approaches focused on clearing parasites out of people including from asymptomatic reservoirs), perceptions around the level/type/quality of evidence (safety and efficacy data) needed for registration of drugs/approaches.

1. If we’re talking about using a drug or combination in a population-wide approach, like MDA, where asymptomatic and symptomatic individuals will be given treatment, what is the safety profile that you need to see? What level of risk is acceptable to your regulatory institution?

2. Do you need local data/evidence for approval of drugs or would you accept data/evidence from
global/regional scientific studies?

3. What kind of efficacy/level of parasite clearance would you need to see for approval?

**Topic Guide C: Implementers (national malaria program, members of relevant technical working groups, private sector provider associations, faith-based organizations, other implementing and research partners)**

Trying to assess level of understanding of technical and operational components of accelerating elimination, familiarity with newer drugs and approaches (i.e. DHA-P, ivermectin, sldPQ and approaches focused on clearing parasites out of people/attacking the asymptomatic reservoir), perceptions around technical and operational feasibility of national elimination goals given the tools, approaches, human resource capacity we have today, challenges/opportunities.

1. How far have we come? What factors do you attribute success to?

2. Where are the gaps? What are the next steps?

3. Are national elimination targets achievable? (Target in NMSP 2014–2020: By 2020, achieve and sustain zero indigenous transmission of malaria in 50 selected districts)
   a. What’s needed to achieve them?
   b. What are the obstacles?
   c. Summarizing what is needed to achieve national malaria elimination:
      i. What do you feel are critical inputs?
         • Probe: What kinds of tools are needed? Drugs, diagnostics, vector control, others?
      ii. What kinds of approaches are needed?
         • Probe on: Population wide approaches looking for infections in people—targeting the asymptomatic reservoirs, targeted vector control, improved case management
         • Probe on: Drugs, diagnostics, vector control, new tools
         • Probe on: Systems such as logistics, information, procurement, financing
         • Probe on: Needed capacity including expertise, skillsets, reporting/supervision votre rôle individuel et le rôle de votre organisation dans les efforts de lutte contre le paludisme au Sénégal.

**Topic Guide D: Adopters (regional, zonal, district, PHCU, and health posts health management)**

Trying to assess level of understanding of technical and operational components of accelerating elimination, familiarity with newer drugs and approaches (i.e. DHA-P, ivermectin, sldPQ and approaches focused on clearing
parasites out of people/attacking the asymptomatic reservoir), perceptions around technical and operational feasibility of national elimination goals given the tools, approaches, human resource capacity we have today, challenges/opportunities.

1. **How far have we come? What factors do you attribute success to?**

2. **Where are the gaps? What are the next steps?**

3. **Are national elimination targets achievable? (Target in NMSP 2014–2020: By 2020, achieve and sustain zero indigenous transmission of malaria in 50 selected districts)**
   
   a. What’s needed to achieve them?
   
   b. What are the obstacles?

   c. Summarizing what is needed to achieve national malaria elimination:

   i. **What do you feel are critical inputs?**

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   ii. **What kinds of approaches are needed?**

      • Probe on: Population-wide approaches looking for infections in people—targeting the asymptomatic reservoirs, targeted vector control, improved case management

      • Probe on: Drugs, diagnostics, vector control, new tools

      • Probe on: Systems such as logistics, information, procurement, financing

      • Probe on: Needed capacity including expertise, skillsets, reporting/supervision
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