Opportunities and Barriers for Accelerating Malaria Elimination in Zambia
A Qualitative Assessment of Stakeholder Perspectives

Completed by PATH in partnership with the Republic of Zambia's Ministry of Health
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Executive summary

In February 2019, PATH and the US President’s Malaria Initiative, in partnership with Zambia’s National Malaria Elimination Programme, conducted a stakeholder assessment to explore challenges and opportunities for accelerating malaria burden reduction and elimination efforts and the ways in which stakeholders’ perceptions of malaria elimination had or had not changed since 2015, when a baseline stakeholder assessment had been conducted. During the 2015 assessment, the concept of malaria elimination had yet to be embraced fully. Since 2015, however, Zambia’s ambition to end malaria has been evident. For example, Zambia has developed an evidence-based and costed national malaria elimination strategy, rebranded the National Malaria Control Centre as the National Malaria Elimination Centre, elevated the national malaria programme to a directorate and shared its progress at monthly partner meetings, added malaria mass drug administration to the arsenal of interventions to accelerate malaria reduction, updated the national communication strategy and developed a national business plan for malaria elimination, established the first-ever End Malaria Council at the country level, and conducted the country’s sixth national Malaria Indicator Survey. See Table 2 for the status of progress against the 2015 baseline recommendations.

For this assessment, 85 stakeholders from key external and in-country actors in organisations based in Zambia, with vested interest in malaria policy or malaria programme implementation, were selected across six categories: community stakeholders, district stakeholders, provincial stakeholders, national stakeholders, implementing stakeholders, and private-sector stakeholders. Each interview subject was asked about Zambia’s malaria targets and objectives, as described in the National Malaria Elimination Strategic Plan 2017–2021. Interviews also aimed to capture stakeholders’ views of what is needed to accelerate progress towards national targets, as well as opportunities and barriers—technical, financial, and operational—for increasing the prominence of malaria on the national health agenda. This analysis of stakeholder responses is intended to inform future programme evaluation and strategy development.

The 2015 baseline assessment organised responses from 45 interviews, largely collected from stakeholders in Lusaka. For this current assessment, on the recommendation of the national malaria programme, stakeholder numbers and geographic scope were expanded significantly. Overall, the assessment teams conducted 85 interviews spanning Copperbelt, Eastern, Lusaka, and Southern provinces. The questionnaire for this assessment included a section on adolescents, an important but often underserved group in the push to eliminate malaria.

As with the baseline assessment, the qualitative results were analysed using the “building block” analytical framework developed by the Bill & Melinda Gates Foundation, which posits that six building blocks—policy, governance, financing, planning and operations, evidence base, and tool development—create a critical pathway towards malaria elimination. A thematic content analysis was conducted using these themes. Findings and associated recommendations from this assessment are presented in the following table, which is aligned to the six building block categories.
**POLICY**

**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 support changes in policy, strategy, and guidance on malaria efforts.**

<table>
<thead>
<tr>
<th>Findings</th>
<th>Recommendations</th>
</tr>
</thead>
<tbody>
<tr>
<td>Knowledge of national elimination target was high, but perspectives on feasibility of attainment were mixed.</td>
<td>• Awareness of, and commitment to, elimination should be sustained through continual investment and programmes to support malaria elimination. Consideration should be given to the feasibility of the 2021 elimination goal, and messaging and the goal itself should be updated as appropriate.</td>
</tr>
<tr>
<td>Malaria interventions have traditionally focused on reaching the under-five-year-old population, but there has been an increasing need for specific strategies to reach adolescents.</td>
<td>• As the malaria burden is reduced, the emphasis must continue to shift from the burden amongst children under five years old to the burden across other at-risk populations. Interventions increasingly should be designed and targeted for other at-risk populations, such as adolescents. • For adolescents, existing platforms for engagement should be leveraged, such as: (a) integration of malaria programming with HIV and sexual and reproductive health programmes, (b) school-based delivery, and (c) adolescent-friendly education, such as expansion of &quot;malaria clubs&quot; in schools. • To better target adolescents with messages and interventions to prevent and treat malaria, there is a need to more formally engage the Ministry of Education on the malaria curriculum and to include schools in campaigns beyond the current long-lasting insecticide-treated bednet distribution at certain grade levels.</td>
</tr>
</tbody>
</table>

**GOVERNANCE**

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

<table>
<thead>
<tr>
<th>Findings</th>
<th>Recommendations</th>
</tr>
</thead>
<tbody>
<tr>
<td>Staffing numbers at the NMEP have increased since the baseline stakeholder assessment, but roles should be defined further to ensure staff are allocated with clear scopes to support malaria elimination efforts at all levels.</td>
<td>• There are now malaria focal point persons at the district level. It is recommended that dedicated malaria personnel also be posted at the provincial level (alongside environmental health technicians) to bolster malaria elimination efforts. • Cross-border partnerships have been established in the Zambezi region. These relationships should be strengthened and expanded to better coordinate interventions across borders and to align concerted malaria elimination efforts regionally. • Private-sector-friendly policies should go beyond the mining companies on the Copperbelt so other large industries can benefit from government bulk purchases of drugs and insecticides.</td>
</tr>
<tr>
<td>There were opportunities to build on strong, existing partnerships with regional collaborators and private-sector partners.</td>
<td></td>
</tr>
</tbody>
</table>
Discussions with the Chinese government regarding their potential role(s) in support of Zambia’s elimination agenda should continue in order to align funding with the needs of the NMEP.

**FINANCING**

*Long-term commitment of domestic funds from national programmes 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.*

<table>
<thead>
<tr>
<th>Findings</th>
<th>Recommendations</th>
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</thead>
<tbody>
<tr>
<td>Positive increases in financing for malaria were observed, but reliance on partners persisted and domestic financial constraints still hindered elimination.</td>
<td>Increased domestic funding from diverse sources and less reliance on donor funding for malaria would aid coordination, as planning would not be dependent on donor preferences and priorities. The launch of the End Malaria Council is a notable achievement since the original stakeholder report. The End Malaria Council needs to focus on addressing specific malaria programming gaps and aligning donor funding around National Strategic Plan priorities. Provincial-level End Malaria Councils need to be established in order to access local funding opportunities.</td>
</tr>
</tbody>
</table>

**PLANNING AND OPERATIONS**

*Adequate health system capacity, infrastructure, and human resources to implement the NMESP and operational plans. Specific plans for scale-up of new approaches, products, and strategies. Realistic timeline for countrywide implementation.*

<table>
<thead>
<tr>
<th>Findings</th>
<th>Recommendations</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lack of adequate infrastructure in the most remote communities hindered distribution and access.</td>
<td>Transportation should be expanded at the community level for referring severe malaria patients (using bicycle ambulances), moving commodities, as well as conducting household malaria testing and treatment. Durable bicycles are critical to the CHW model of following up on positive malaria cases in the community, but there needs to be improved access to bicycle spare parts and repair services for the CHWs to reliably serve their communities.</td>
</tr>
</tbody>
</table>

|          | The number of CHWs should continue to be increased to expand access to prompt testing and treatment. The NMEP and its partners are addressing this as training, equipping, and deploying of CHWs is ongoing. An estimated 10,000 CHWs had been trained at the time the interviews took place. The NMEP estimates that 36,000 are required countrywide. The starter kit for CHWs—a package of essential supplies that includes a T-shirt, a cap, an apron, a bike, registers, and talk time—needs to be standardised across partners. There continues to be a push for support for CHWs beyond the current starter kit. Increasing the number of community health assistants trained each year and providing them consistent compensation would help to fill the health worker gap. |

CHWs were spread thin across households and patients, and support for the role of CHWs was not standardised across partners.
Challenges persist in allocation and distribution of commodities—such as drugs, RDTs, and bednets—from the central level to the community level of the health system.

Community engagement and ownership were paramount when introducing new interventions and delivering messages about malaria elimination.

- The logistics management system should be strengthened, including at community level, to help ensure adequate forecasting, allocation, and reach of commodities.
- Messaging must continue to be localised and tailored to the population and geography to ensure intervention uptake and to address barriers (e.g., specific messages to dispel common myths and misperceptions). The audiences need to be expanded to include school-aged children, which could be part of a larger partnership opportunity with the Ministry of Education. In addition, mobile populations, who are often missed during malaria campaigns, need to be included on messaging. Messages for mobile populations should include how they can access services.
- As malaria interventions continue to be expanded (e.g., IRS and mass drug administration), Zambia can build on its experience in community engagement when introducing a new activity.

Data use for planning and resource allocation has increased, but data reporting and data quality need continued attention.

- Improved systems and infrastructure for data integration and data use are recommended. Suggestions vary, but these could include improved standardisation of data use and reporting at all levels, as well as automation, electronic tools, and better decision-making tools.
- There is a comprehensive and standardised system in place for data review meetings, data quality audits, mentorship, and technical supportive supervision. These elements need to be reviewed to ensure the continued flow of timely and accurate malaria information at all levels.

EVIDENCE BASE
Sufficient evidence around new tools and approaches to support policy change and national programme adoption.

<table>
<thead>
<tr>
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<th>Recommendations</th>
</tr>
</thead>
<tbody>
<tr>
<td>There were gaps in data for under-reached or under-reported populations.</td>
<td>More disaggregated data (by age and gender) are needed to uncover subpopulation patterns to better understand which populations are at risk/high burden, particularly patterns among adolescents, seasonal migrants, and those in cross-border areas. This will help to tailor messaging, campaign intervention timing, and commodity uptake.</td>
</tr>
<tr>
<td>There were perceived challenges in intervention coverage and uptake (e.g., bednets and IRS), but statistics or monitoring data on uptake and usage were not available.</td>
<td>More data are needed on intervention coverage and uptake, particularly for insecticide-treated nets, in order to target behaviour change communication efforts and enhance the efficacy of interventions. Zambia should build on the strong IRS evidence base to collect more data to inform targeted indoor residual spray delivery (e.g., coverage, timing, frequency, and chemicals).</td>
</tr>
</tbody>
</table>
TOOL DEVELOPMENT
Necessary product development for new tools.

<table>
<thead>
<tr>
<th>Findings</th>
<th>Recommendations</th>
</tr>
</thead>
<tbody>
<tr>
<td>Enthusiasm for additional vector control interventions was high, but not all interventions may be appropriate for the context.</td>
<td>• Guidance around where and how to most effectively target environmental improvements, larval source management, and drain clearing should be clarified to maximise impact.</td>
</tr>
</tbody>
</table>

Abbreviations: CHW, community health worker; IRS, indoor residual spraying; NMEP, National Malaria Elimination Programme; NMESP, National Malaria Elimination Strategic Plan; RDT, rapid diagnostic test.
# Abbreviations

<table>
<thead>
<tr>
<th>Abbreviation</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>CHA</td>
<td>community health assistant</td>
</tr>
<tr>
<td>CHW</td>
<td>community health worker</td>
</tr>
<tr>
<td>DHIS2</td>
<td>District Health Information Software 2</td>
</tr>
<tr>
<td>EHO</td>
<td>environmental health officer</td>
</tr>
<tr>
<td>HMIS</td>
<td>health management information system</td>
</tr>
<tr>
<td>IRS</td>
<td>indoor residual spraying</td>
</tr>
<tr>
<td>LSM</td>
<td>larval source management</td>
</tr>
<tr>
<td>MACEPA</td>
<td>Malaria Control and Elimination Partnership in Africa</td>
</tr>
<tr>
<td>MOH</td>
<td>Ministry of Health</td>
</tr>
<tr>
<td>NMEP</td>
<td>National Malaria Elimination Programme</td>
</tr>
<tr>
<td>NMESP</td>
<td>National Malaria Elimination Strategic Plan 2017–2021</td>
</tr>
<tr>
<td>PAMO</td>
<td>Program for the Advancement of Malaria Outcomes</td>
</tr>
<tr>
<td>RDT</td>
<td>rapid diagnostic test</td>
</tr>
</tbody>
</table>
Purpose

In June 2015, the PATH Malaria Control and Elimination Partnership in Africa (MACEPA), in partnership with the Republic of Zambia’s Ministry of Health (MOH), conducted a stakeholder assessment to explore the perceptions of key stakeholders in malaria policy and implementation around the introduction and scale-up of new tools and approaches for malaria elimination. In 2017, after demonstrating significant progress in reducing the burden of malaria over the previous decade, Zambia officially made elimination of the disease its goal, as reflected by its National Malaria Elimination Strategic Plan 2017–2021 (NMESP), which called for an ambitious push towards national malaria-free status through the elimination of local malaria transmission by 2021.2

It is in this context that, in February 2019, in partnership with the MOH and in support of the National Malaria Elimination Programme (NMEP), PATH MACEPA, the US President’s Malaria Initiative, and NMEP staff conducted a follow-up stakeholder assessment to examine the feasibility of the malaria elimination goal, progress to date, and the ways in which stakeholders’ perceptions of malaria elimination have (or have not) changed since the 2015 assessment. The assessment also sought to explore potential challenges to the goal of elimination, identify opportunities for accelerating progress, and document the perceptions of key stakeholders in malaria policy and implementation around the country’s readiness to introduce and scale new tools and approaches. The findings are intended to inform policies and programme strategies to accelerate progress towards the reduction and elimination of the malaria burden in Zambia.

Background

In Zambia, the MOH provides overall leadership of national health systems, policies, and strategies, as well as partner coordination and resource mobilisation for malaria activities. The NMEP, an MOH entity, is responsible for the management of the national malaria programme and the development and implementation of its strategic plans (Figure 1). The subnational health system structure consists of hospitals, health centres, and health posts that are managed at the provincial and district levels. Health management personnel who manage and implement the national malaria strategy subnationally include provincial health directors and district health directors. At the district level, there are surveillance officers, health promotion officers, malaria focal point persons, and now malaria elimination officers. These positions implement malaria activities, including storage and distribution logistics, supervision of facility and community case management, community engagement, and monitoring of a range of work in the district, especially during the annual indoor residual spraying (IRS) campaign and mass distribution of long-lasting insecticide-treated nets. Partner coordination is done at the central level through technical working groups whose members include representatives from the government of Zambia, donor organisations, and implementing partners. Technical working groups meet regularly to review strategies and guidelines, monitor the progress of the malaria programme, mobilise and leverage resources, and coordinate malaria activities as guided by the NMESP.
PATH, through its malaria projects MACEPA and PAMO Plus, works in partnership with the Zambian NMEP and MOH to develop malaria elimination policies and plans and to provide technical support for the implementation of malaria interventions in Zambia.
Methodology

Stakeholder identification and overview

In February 2019, PATH and NMEP staff conducted 85 in-depth interviews with stakeholders in Zambia’s Copperbelt Province, Eastern Province, Lusaka Province, and Southern Province. For the purposes of this assessment, stakeholders were defined as key external and in-country actors in organisations based in Zambia with a vested interest in malaria policy or malaria programme implementation. The PATH MACEPA Zambia country team, who work closely with the MOH, NMEP, and other malaria partners, facilitated the identification of stakeholders and managed the scheduling of interviews. After identifying potential respondents, PATH MACEPA received approval from the MOH to begin outreach to high-priority organisations and to request interviews with key organisational representatives, including individuals in leadership and technical roles supporting national malaria efforts. Stakeholders were asked to participate in the stakeholder assessment on behalf of the MOH, in partnership with PATH MACEPA, and in support of malaria control and elimination efforts in Zambia.

Stakeholders were identified and selected from the following six categories:

- **Community stakeholders** who communicate public health messages, promote health-seeking behaviour, and/or deliver malaria interventions in their communities.

- **District stakeholders** who manage the implementation and realisation of the NMESP at the district and facility levels.

- **Provincial stakeholders** who manage the implementation and realisation of the NMESP at the provincial level.

- **National stakeholders** (namely government representatives from the MOH and NMEP) and donors (country representatives of multilateral and bilateral donor agencies) who have the ability to directly or indirectly influence the design of the NMESP.

- **Implementing stakeholders**, including representatives from the NMEP, relevant working groups, academic/research institutions, faith-based organisations, and other nongovernmental organisation implementing partners. Implementers play a crucial role in planning and executing the NMESP.

- **Private-sector stakeholders** whose companies are involved with malaria control and elimination activities for their workers and/or surrounding communities.

The selected study sites (Figure 2) reflected the varying levels of malaria endemicity across Zambia and a broad range of actors at the national and subnational levels. Stakeholders were purposively chosen to represent organisations with varying perspectives, goals, and institutional linkages to the national malaria programme in Zambia.

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*a The 2018 Zambia National Malaria Indicator Survey found that malaria parasite prevalence among children under five years of age was 0.0 percent in Southern Province, 0.1 percent in Lusaka Province, 7.7 percent in Copperbelt Province, and 8.7 percent in Eastern Province in 2018. In comparison, in 2015, malaria parasite prevalence among children under five was 0.6 percent in Southern Province, 2.4 percent in Lusaka Province, 15.2 percent in Copperbelt Province, and 12.7 percent in Eastern Province.*
Figure 2. Study locations and Plasmodium falciparum malaria incidence by health facility catchment area in 2018 in Zambia.

Interviews were conducted in Lusaka Province to capture data from representatives of the MOH and Ministry of Finance, country representatives of multilateral and bilateral donor agencies, and programme leads and relevant technical staff at the NMEP. Interviews were conducted in Copperbelt Province, Eastern Province, and Southern Province to capture data from provincial health management teams, district health management teams, facility management teams, and community-level influencers, such as community health workers (CHWs), teachers, parents, chiefs, and local faith leaders. Table 1 shows the number interviews held by stakeholder category and geography.

Table 1. Interviews by stakeholder category and province.

<table>
<thead>
<tr>
<th>Stakeholder category</th>
<th>Lusaka</th>
<th>Copperbelt</th>
<th>Eastern</th>
<th>Southern</th>
<th>Interviews by category</th>
</tr>
</thead>
<tbody>
<tr>
<td>Community stakeholders</td>
<td>0</td>
<td>3</td>
<td>14</td>
<td>11</td>
<td>28</td>
</tr>
<tr>
<td>District stakeholders</td>
<td>0</td>
<td>6</td>
<td>13</td>
<td>5</td>
<td>24</td>
</tr>
<tr>
<td>Provinicial stakeholders</td>
<td>0</td>
<td>1</td>
<td>3</td>
<td>2</td>
<td>6</td>
</tr>
<tr>
<td>National stakeholders</td>
<td>9</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>9</td>
</tr>
<tr>
<td>Implementing stakeholders</td>
<td>13</td>
<td>2</td>
<td>0</td>
<td>0</td>
<td>15</td>
</tr>
<tr>
<td>Private-sector stakeholders</td>
<td>1</td>
<td>2</td>
<td>0</td>
<td>0</td>
<td>3</td>
</tr>
<tr>
<td>Interviews by province</td>
<td>23</td>
<td>14</td>
<td>30</td>
<td>18</td>
<td>85</td>
</tr>
</tbody>
</table>
Data collection

Data were collected through in-depth interviews with 85 stakeholders. Interviews were conducted using a semistructured guide that consisted of specific and open-ended questions, which had been developed in advance of the interview process and tailored specifically to each stakeholder category. Although a core set of questions were asked of each respondent, the semistructured approach allowed flexibility for researchers to ask follow-up questions based on initial responses and to probe respondents on specific areas requiring further elaboration or clarification.

Individual interviews were conducted by pairs of interviewees from PATH and the NMEP. Whilst the majority of interviews were conducted in English, several interviews with health management representatives at the district and facility levels required translation from local languages into English. All interviews were digitally recorded and transcribed verbatim, with translation as required.

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

Confidentiality and consent

Written informed consent was obtained from all participants before interviews. The assessment protocol was approved by the University of Zambia, PATH, and London School of Hygiene & Tropical Medicine. To maintain privacy and confidentiality of stakeholders, all recordings and transcriptions were identified using a unique identifying number and were stored on a password-protected website. Although individual responses are highlighted in this report, any direct identifying information is withheld.

Qualitative analysis

Similar to the assessment conducted in 2015, the study team employed a “building block” analytical framework to organise and analyse content from the interviews. The framework, developed by the Bill & Melinda Gates Foundation, posits that six building blocks—policy, governance, financing, planning and operations, evidence base, and tool development—create a critical pathway towards malaria elimination. The building blocks are described below:

- **Policy**: 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 support changes in policy, strategy, and guidance on malaria efforts.

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

- **Financing**: Long-term commitment of domestic funds from national programmes 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**: Adequate health system capacity, infrastructure, and human resources to implement the NMESP and operational plans. Specific plans for scale-up of new approaches, products, and strategies. Realistic timeline for countrywide implementation.

- **Evidence base**: Sufficient evidence around new tools and approaches to support policy change and national programme adoption.
- **Tool development:** Necessary product development for new tools.

Coding was done in ATLAS.ti software to identify themes aligned with the analytical framework and to further analyse content (see Appendix 2: Thematic codebook). A team of six PATH staff, four of whom participated in conducting the interviews, performed the coding. All themes identified and codes assigned were reviewed by study personnel as a team to ensure consistency of application.

### Comparison against 2015 baseline report

The stakeholder assessment conducted in 2015 by PATH MACEPA and NMEP staff used a similar methodology. The report for that assessment and its supporting qualitative data served as a baseline for this analysis of the enabling environment for national malaria policy and implementation efforts. The team also examined progress made on recommendations from the 2015 assessment, which can be viewed in Table 2.

**Table 2. Status of 2015 stakeholder assessment recommendations.**

<table>
<thead>
<tr>
<th>Building block</th>
<th>2015 recommendation</th>
<th>Achieved?</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>malaria strategic plan that includes operationally, technically, and financially</td>
<td></td>
<td>A consensus effort with NMEP leading the way that coordinates the partners so their activities are aligned with the national strategy.</td>
</tr>
<tr>
<td></td>
<td>feasible elimination targets.</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Develop annual malaria elimination operational plans to guide elimination efforts,</td>
<td>X</td>
<td>Example: Results from a malaria mass drug administration trial resulted in the NMEP incorporating mass drug administration into the country’s arsenal of proven interventions.</td>
</tr>
<tr>
<td></td>
<td>and align resources that address systems, budget, and implementation requirements.</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Continue to incorporate latest tools and approaches for parasite clearance into</td>
<td>X</td>
<td>The national programme was elevated to a directorate, and the National Malaria Control Centre was rebranded as the National Malaria Elimination Centre. A new organisational chart has been adopted, and monthly directorate meetings are conducted.</td>
</tr>
<tr>
<td></td>
<td>national policies, strategies, and treatment guidelines.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Governance</td>
<td>Empower National Malaria Control Programme management to coordinate national</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td></td>
<td>malaria elimination agenda, guide GRZ and partner strategy development and</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>operationalisation, and offer a strong voice for Zambia’s malaria</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>efforts within the GRZ, the Elimination Eight Initiative, and the international</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>global health community.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Building block</td>
<td>2015 recommendation</td>
<td>Achieved?</td>
<td>Comments</td>
</tr>
<tr>
<td>---------------</td>
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<td>----------</td>
</tr>
<tr>
<td><strong>Support technical capacity at the National Malaria Control Centre</strong> by regularly reviewing staffing needs and training, hiring, and retaining sufficient personnel with core skill sets (including surveillance, M&amp;E, SBC, and elimination planning) to manage the development and implementation of national policies and strategies.</td>
<td>✗</td>
<td>The reorganisation process included identifying and placing the right people in the right roles.</td>
<td></td>
</tr>
<tr>
<td>Convene annual review and meetings with key partners and stakeholders to review operational challenges and opportunities related to the national malaria strategic plan and operational plan.</td>
<td>✗</td>
<td>Regular partner meetings now conducted at the NMEP. The national scorecard, an online tool, is reviewed to track progress against targets in the national strategy.</td>
<td></td>
</tr>
<tr>
<td>Promote partner alignment and coordination by regularly holding technical working group meetings with broad, representative partner participation.</td>
<td>✗</td>
<td>In addition to monthly directorate meetings, there are regular technical working group meetings.</td>
<td></td>
</tr>
<tr>
<td>Engage and provide leadership in regional coordination mechanisms, such as the Elimination Eight Initiative, to strengthen regional elimination initiatives and leverage learnings from neighbouring countries.</td>
<td>✗</td>
<td>The NMEP participates in regional meetings, and an Elimination Eight Initiative country representative sits at the NMEP.</td>
<td></td>
</tr>
<tr>
<td><strong>Planning and operations</strong> Promote multiple channels of insecticide-treated net distribution to sustain coverage between mass distribution campaigns.</td>
<td>✗</td>
<td>School distribution added to antenatal clinic, EPI, and other channels.</td>
<td></td>
</tr>
<tr>
<td>Optimise IRS by improving planning, implementing programmes in a timely manner, targeting, and actively engaging local partners in the implementation process.</td>
<td>✗</td>
<td>IRS planning, implementation, and tracking improved through use of digital tools in parts of the country.</td>
<td></td>
</tr>
<tr>
<td>Engage community leaders and communities and develop more nuanced, informative, and appealing messaging for IEC/BCC regarding</td>
<td>✗</td>
<td>In addition to radio, village meetings that involve drama groups and traditional leaders and focused community engagement now occur; they target religious leaders, mobile populations, and students. Zambia’s National Communication Strategy for Malaria Elimination was launched by the Minister of Health in 2018.</td>
<td></td>
</tr>
<tr>
<td>Building block</td>
<td>2015 recommendation</td>
<td>Achieved?</td>
<td>Comments</td>
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</tr>
<tr>
<td></td>
<td>the importance of insecticide-treated net use, IRS acceptance, and prompt treatment seeking.</td>
<td>X</td>
<td>Ongoing. Need to continue to strengthen supply chain, especially at community level and to ensure forecasting is adequate to meet increasing demand from a larger number of service providers.</td>
</tr>
<tr>
<td></td>
<td>Strengthen supply chain management through proactive logistics management at provincial and district levels and strong planning and needs forecasting amongst GRZ and partners at the national level, with regular convening of relevant technical working groups and partner groups.</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>Evidence base</td>
<td>Investigate impact of cross-border population movement on malaria transmission to identify appropriate intervention strategies.</td>
<td></td>
<td>Need to strengthen surveillance data at facility and community levels to differentiate imported malaria cases, especially in cross-border areas.</td>
</tr>
<tr>
<td></td>
<td>Support capacity-building for domestic research into new tools and approaches.</td>
<td>X</td>
<td>NMEP lab has increased personnel and capacity.</td>
</tr>
<tr>
<td></td>
<td>Ensure that new evidence regarding transmission reduction strategies and case investigation relevant to the Zambian context is disseminated in a prompt and inclusive manner within the GRZ and with partners.</td>
<td>X</td>
<td>Current malaria situation, including existing and new data, is now shared at monthly directorate meeting.</td>
</tr>
<tr>
<td>Tool development</td>
<td>Support field validation of point-of-care diagnostics with improved sensitivity and specificity.</td>
<td>X</td>
<td>Community-led Responses for Elimination (CoRE) study completed.</td>
</tr>
</tbody>
</table>

Abbreviations: BCC, behaviour change communication; EPI, Expanded Programme on Immunization; GRZ, government of the Republic of Zambia; IEC, information, education, and communication; IRS, indoor residual spraying; M&E, monitoring and evaluation; NMEP, National Malaria Elimination Programme; SBC, social and behaviour change.
Qualitative results

Stakeholder perspectives on the major successes and challenges faced in Zambia’s malaria efforts are summarised in the following sections, which are aligned to the six building block categories. Stakeholders generally believed the strategic direction of Zambia’s malaria efforts to be on the right path and were quick to note progress achieved thus far. Overall, stakeholders were supportive of malaria efforts because they recognised the severity of the issue and that, through intense investment, the national programme had demonstrated that it was possible to eliminate the disease. However, there were concerns about achieving malaria elimination in the short term without a strengthened health system, improved coordination and communication amongst partners, and increased support for the human resources required to meet the challenge.

Policy

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 support changes in policy, strategy, and guidance on malaria efforts.

In 2015, Zambia was entering the final stages of a national malaria strategic plan that aimed to reduce malaria transmission—eliminating the disease was not yet a goal formally stated by the government. However, most respondents (86 percent) of the stakeholder assessment conducted that year felt that the country should set a target to eliminate malaria nationally; part of their rationale was that elimination felt feasible. Thus, Zambia set its sights on becoming a malaria-free country, as reflected by the goals in the NMESP: eliminating local malaria infection and disease by 2021, maintaining malaria-free status, and preventing reintroduction and importation of malaria into areas where the disease has been eliminated.

With the introduction of the elimination target, the policy environment has become very supportive of the goal of malaria elimination. The 2019 assessment showed that stakeholders have become focused on recommending more nuanced and specific policies to enable further movement towards elimination. But whilst stakeholders generally supported the elimination policy, they expressed mixed sentiments regarding the feasibility of, and progress towards, achieving the elimination goal by 2021.

Interestingly, after being identified as one of the key policy challenges in 2015, stakeholders did not mention regulatory systems as an area of need in 2019. This may be due to a sampling bias, as fewer regulatory officials were included in stakeholder interviews in 2019.

Knowledge of national elimination target was high, but perspectives on feasibility of attainment were mixed

Most respondents were aware of the country’s goal of eliminating malaria by 2021. Of the 51 interviewees who provided a year that they believed Zambia aimed to eliminate the disease by, 46 correctly said 2021. Most stakeholders also felt that the elimination policy had generated progress and successes. Furthermore, respondents broadly expressed that elimination was feasible, and most stated that their confidence that elimination could be achieved had increased compared with 2015.
"I think overall the malaria programme in Zambia is doing quite well. I heard [the NMEP] just issued the headlines from the last Malaria Indicator Survey, which [showed] generally good results. There are a couple of areas where it looks like a little bit more work needs to be done, but overall, the impression that you get is the programme is doing quite well."
– National stakeholder, Lusaka Province

Whilst respondents generally felt that the policy drove elimination efforts forward, many respondents were sceptical that elimination could be achieved by the date set in the NMESP. Many respondents felt that whilst clear progress had been demonstrated in certain areas, eliminating malaria nationwide by 2021 would be difficult, noting areas of the country where the malaria burden remained high (see quote below and Box 1).

“To be honest, it’s a very ambitious programme. Whether it’s something that can be achieved by 2021, I’m not sure because we definitely still have a long way to go. Also, looking at what has been happening even in places where we’re supposed to be doing well, there’s been this up and down in terms of malaria prevalence due to a lot of factors. . . . Definitely, if we remove the timeline, elimination of malaria is something that is achievable."
– Implementing stakeholder, Lusaka Province

Confidence in the achievability of the elimination goal by 2021 also varied by geography. In Zambia’s Southern, Eastern, and Lusaka provinces, respondents were largely optimistic due to visible evidence of political will and community buy-in.

“I feel it’s very much achievable and the government and partners are putting in all their efforts to support this course [of action] because a lot of funding is coming. There is political will. I’m very much sure we can achieve our goal.”
– District stakeholder, Eastern Province

However, some respondents expressed scepticism, particularly in Copperbelt Province, where multiple interviewees felt that there was not

Box 1: Geographies with difficult-to-eliminate malaria

When asked which areas in Zambia would have the most trouble with achieving malaria elimination, most respondents felt that areas with bodies of water (particularly Luapula) would have the most difficulty.

“It’s difficult everywhere in Zambia, but I think the areas where there are a lot of water bodies—water bodies that cannot be controlled like Luapula, Copperbelt— it’s very difficult.”
– District stakeholder, Copperbelt Province

Respondents also identified rural and remote areas as places that would have difficulty eliminating malaria due to community characteristics pertaining to the way of life and level of education.
enough progress “on the ground” due to a disconnect between what was written in the strategic plan and what was being implemented.

“I think when we’re looking at what we have in our strategic plan and what we have on the ground, those are two different things. We’ve lacked a lot of support, I think, financially in relation to some of the interventions.”
– Private-sector stakeholder, Copperbelt Province

A minority of respondents noted that setting an ambitious target was valuable, even if the goal were not attained.

“I think [the goal] clearly now articulated is 2021. I think that’s a very ambitious goal, but I’ve always believed in life to have impossible goals so you can aim at them.”
– Implementing stakeholder, Lusaka Province

Whilst there was some debate over the feasibility of attaining the goals laid out in the elimination policy, respondents agreed that malaria elimination would have a substantive positive impact on Zambia. Most described impact in terms of productivity and the economy—that malaria elimination would enable more resources to be devoted to Zambia’s other health and social issues.

“Yes, if we eliminated malaria, I can assure you, in the health facilities, there would be very few patients. There would be very, very few patients. That would mean, now, that the health worker–patient ratio would reduce. We believe that a lot of resources now would be channelled towards, maybe, maternal health, child health, as well as other challenges, other than this malaria.”
– Provincial stakeholder, Copperbelt Province

 “[Malaria elimination] would be good in that most of our communities would be able now to concentrate on their productive life. The communities I think would concentrate more and do production and thereby [be] contributing to the development of this district and the country as a whole, economy wise.”
– District stakeholder, Eastern Province

Respondents also expressed concern about complacency potentially causing observed gains to be lost.
“The issue will be how to sustain the achievements that we are going to attain. Like what happened last time. I think after ’07, ’08, ’09, ’10, malaria was quite low here. Then people relaxed and malaria shot up again. The issue is how to sustain that; that is where we need to strengthen ourselves.”
– District stakeholder, Copperbelt Province

Recommendation

Awareness of and commitment to elimination should be sustained through continual investment and programmes to support malaria elimination. Consideration should be given to the feasibility of the 2021 elimination goal, and messaging and the goal itself should be updated as appropriate.

Malaria interventions have traditionally focused on reaching the under-five-year-old population, but there has been an increasing need for specific strategies to reach adolescents

Whilst the elimination policy was generally well known and well regarded amongst stakeholders, there was a perception that the malaria programme did not have specific policies and targets for all the necessary subgroups of populations. There are malaria policies for long-lasting insecticide-treated net distribution in schools, children under five years of age, pregnant women, mobile populations, and even those suffering from sickle cell anaemia. Not included to date is a focus on adolescents, which is identified in this report as a population requiring greater engagement. Studies continue to show that school-aged children, often defined as 5 to 15 years of age, can be a significant contributor to malaria transmission. Studies also show that that same age group often has the lowest rates of long-lasting insecticide-treated net use. There is a need to formally engage the Ministry of Education to improve the malaria curriculum in the classroom and the schools to actively participate during malaria campaigns.

Respondents frequently cited HIV and reproductive health as areas with policies/programmes for specific populations; they perceived that the malaria programme needed to expand to have similar policies/programmes. It is important to note that the stakeholder interviews for this report introduced questions about adolescents, whereas the 2015 stakeholder interviews primarily focused on national-level, aggregate policies.
Whilst evidence on current uptake of adolescent interventions is limited (see “Evidence base” section), respondents clearly perceived a need for further adolescent policies and programmes. The need was described in terms of developing specific outreach and treatment packages. Some stakeholders felt that the malaria programme could learn from other health programme successes. This is especially important as surveys continue to show high levels of malaria parasitaemia in children aged 5 to 15 years.

“In the Zambian cultural context, if you do not deliberately give certain interventions like mosquito nets specifically to the adolescents, they’re not going to sleep under the mosquito net . . . that age group needs to be targeted specifically.”
– Implementing stakeholder, Lusaka Province

“Yes, maybe the discussions that are going on regarding HIV and adolescents could also be a benefit to thinking more broadly about adolescent health and their vulnerability in terms of malaria.”
– National stakeholder, Lusaka Province

Respondents also cited pregnant women as a key population to target. Whilst existing policies already target pregnant women with an insecticide-treated net at first contact and Fansidar (sulfadoxine and pyrimethamine) during their antenatal visits, and though respondents reported that pregnant women were amongst the household members most likely to sleep in bednet-protected sleeping spaces (see Box 2), respondents still had an impression that further education and policies were needed. In particular, some stakeholders noted the need to strongly encourage women to go to the health clinic at the first signs of pregnancy.

**Recommendations**

As the malaria burden is reduced, the emphasis must continue to shift from the burden amongst children under five years old to the burden across other at-risk populations. Interventions increasingly should be designed and targeted for other at-risk populations, such as adolescents.

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**Box 2: Bednet use prioritisation and access**

While the recommended level of bednet access in a household is one net per two people, this may not cover all household sleeping spaces, particularly in multigenerational households. When asked about the hierarchy for bednet use in the household, respondents reported that bednet use was concentrated among pregnant women and children under five years of age, followed by parents and the elderly. Adult men and adolescents were the least commonly cited users of bednets. Respondents reported that this was due to changes in sleeping arrangements as children age, with adolescents sleeping outside of the home or in different quarters and at different times.

“Mostly, priority is given to the children and maybe the pregnant women. . . . If you just go to the household and you give one, definitely, it will not be the adolescents that will benefit from those nets. . . . If there are ten beds in that home, you have to give ten nets.”
– Implementing stakeholder, Lusaka Province
**Recommendations**

For adolescents, existing platforms for engagement should be leveraged, such as: (a) integration of malaria programming with HIV and sexual and reproductive health programmes, (b) school-based delivery, and (c) adolescent-friendly education, such as expansion of “malaria clubs” in schools.

To better target adolescents with messages and interventions to prevent and treat malaria, there is a need to more formally engage the Ministry of Education on the malaria curriculum and to include schools in campaigns beyond the current long-lasting insecticide-treated bednet distribution at certain grade levels.

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**Governance**

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

In 2015, stakeholders expressed a desire for more-effective coordination across all levels of government and a strengthened governance architecture that could improve malaria control. At the time, Zambia was in the midst of decentralising the health system to spread responsibility for malaria programmes across departments to facilitate implementation efforts. According to many stakeholders, this division of responsibilities was ineffective due to an incomplete transition to decentralisation, cumbersome bureaucratic processes, and insufficient funding and participation at the district level.

Since then, the NMESP was launched and the health system was “recentralised,” strengthening the country’s malaria governance structures. Additionally, the national malaria programme was elevated from a subdirectorate, when it was viewed as a peripheral entity at the MOH and lacked governance mechanisms to engage heads of partner institutions (Figure 3), to the level of a directorate. It is now positioned as the entity responsible for coordinating all national malaria efforts, aligning partners, engaging with provincial- and district-level health offices, and reporting to the MOH permanent secretary for technical services (Figure 4).

Underscoring the government’s commitment to malaria elimination, the National Malaria Control Programme was rebranded as the NMEP. Similarly, the National Malaria Control Centre, the physical location of the NMEP, was rebranded as the National Malaria Elimination Centre. Each month, Zambia’s malaria community gathers for the NMEP-led directorate meeting to review the national scorecard, an online tool to track progress against the targets in the NMESP. Technical working groups—for areas such as case management, vector control, surveillance, and social and behaviour change communication—convene at least quarterly.
The government’s commitment to malaria elimination also has been reflected in evolving policy and personnel changes. Notably, with the emphasis on elimination, the NMEP developed a desire for full-time oversight of malaria-related activities at the district level. Previously, districts had malaria focal point persons, but that role was often filled by environmental health officers, for whom malaria was
just one of their many health-related duties. Since the advent of the NMESP, the NMEP has made an effort to establish malaria elimination officers at the district level whose duties are specific to malaria and include overseeing malaria control and elimination efforts and liaising with other district health staff and partners to ensure effective case management of malaria. The NMEP ultimately hopes to expand this role nationwide at the district and provincial levels.

Additionally, in 2017, the *Guidelines for the Diagnosis and Treatment of Malaria in Zambia* was updated to reflect new policy recommendations. These included the recommendations that 100 percent of all suspected malaria cases in all districts should receive parasitological analysis (microscopy or rapid diagnostic test [RDT]) and that 100 percent of parasitologically confirmed malaria cases should receive prompt (within 24 hours) and effective antimalarial treatment.5

Furthermore, in 2018, the End Malaria Council was announced (and subsequently launched in 2019). Convened by the President of Zambia and chaired by the MOH, the Council comprises heads of industries, senior government officials, and other leaders. Its terms of reference and composition are currently under development. The Council’s work will include appealing to the private sector to help with resource mobilisation in terms of both people and financing.

**Staffing numbers at the NMEP have increased since the baseline stakeholder assessment, but roles should be defined further to ensure staff are allocated appropriately with clear scopes to support malaria elimination efforts at all levels**

In the 2015 assessment, respondents’ critiques of the health system largely focused on the unclear divisions of responsibility that resulted from the decentralisation process. In 2019, respondents reported that recentralisation brought some clarity with regard to responsibilities but also a new set of needs—namely, ensuring that appropriate personnel fill the proper roles.

The creation and expansion of a cadre of malaria elimination officers at the district level have been major human resource commitments since the original stakeholder perspectives report in 2015. In the interviews conducted for this assessment, respondents noted that there was a need for malaria elimination officers at the provincial level, where they had yet to expand and where environmental health technicians still performed the duties of a malaria focal person. Even at the district level, these positions can be ad hoc and performed by personnel who lack formal training.

“When you go to provincial level, you’ll see there’s not a specific malaria person, so we are working with the chief EHO [environmental health officer] so they are also coordinating malaria programmes. Their skill set is environmental health; they may not necessarily be malaria experts. . . . At district level, we have IRS managers, IRS coordinators, and malaria focal points. But these are ad hoc positions. . . . We haven’t had any formal trainings arranged for people to really get the skills for malaria. They get the skills for IRS, but not formally for malaria.” – National stakeholder, Lusaka Province
**Recommendation**

There are now malaria focal point persons at the district level. It is recommended that dedicated malaria personnel also be posted at the provincial level (alongside environmental health technicians) to bolster malaria elimination efforts.

There were opportunities to build on strong, existing partnerships with regional collaborators and private-sector partners

Strong partnerships between diverse constituencies—the national malaria programme, the private sector, and nongovernmental organisations, amongst others—are essential to driving progress towards malaria elimination. Whilst respondents named many different collaborators in the malaria elimination effort, they most commonly cited three promising or important areas for partnership: neighbouring countries, the private sector, and China. These areas reflect Zambia’s strong relationships with more traditional foreign donors and multilateral organisations.

As Zambia shares a border with eight countries, the country needs to cooperate with neighbouring countries to address cross-border malaria issues and to prevent any re-introduction of malaria if Zambia is able to eliminate the disease within its borders. However, each country has a different health agenda, different geographies, different levels of malaria prevalence, and even different types of mosquitoes and malaria parasites to combat; these differences pose challenges. Furthermore, most major donor-funded projects are country specific, operate on different funding cycles, implement different control strategies, and measure success differently. Reconciling all of these competing approaches is an ongoing process, as is finding a common way of measuring progress against commonly agreed upon benchmarks.

In the 2015 assessment, respondents indicated that the new strategic plan needed policies that address regional coordination in order to foster partnership. Indeed, the importance of promoting the regular exchange of malaria-related information of mutual interest, calling attention to malaria situations in border areas, organising border meetings, and participating in international training has been included in the NMESP. Zambia has existing regional partnerships in the Zambezi area with Namibia, Zimbabwe, Malawi, and Mozambique, and it has had discussions about partnerships with the Democratic Republic of the Congo and Angola.

“We have an active [collaboration] with the Namibians, the Nam-Zam. We have an active one with the Zimbabweans, the Zam-Zim. We are rejuvenating the Mo-Zam-M—that was Zambian, Malawi, Mozambique. Right now, we’re in talks with Angolans. And, of course, now since the dust has settled in Congo or DR, we would also want to more or less extend [collaboration] to our colleagues up north. Tanzania also.”

– National stakeholder, Lusaka Province

However, stakeholders also felt that further regional coordination was needed to better operationalise these groups and maintain their activity. Stakeholders cited the need for greater frequency of engagement, as the current bodies were not active enough.
“Different countries, different culture, different geography. I’m sure at some point we [will] meet. [They] need to be in communication more frequently.”
– National stakeholder, Lusaka Province

“It [the collaboration] comprises three countries, which normally meet on a yearly basis to discuss how we can, together, address these malaria challenges. Of course, the major problem is that this coordinating board has not been very active of late.”
– Provincial stakeholder, Eastern Province

Private-sector support for Zambia’s malaria elimination ambitions has long been valuable and mutually beneficial, as it has been shown that malaria is bad for business—impacting a company’s workforce and harming the economic environment in which the company operates. Respondents felt that private-sector engagement had produced successes, but further partnership was needed. Governmental stakeholders identified fluctuation in private-sector engagement in recent years and an opportunity to increase engagement with private-sector partners by giving them a larger role and say in what they are helping finance.

“We still have excellent examples like the Mazabuka sugar [Zambia Sugar]. Those folks and others [show that] we don’t have to just theorise about what private sector can do, we have very concrete and successful examples.”
– National stakeholder, Lusaka Province

“Initially, somewhere around 2000 to 2002, we had very strong partnership from the mines and also in the agriculture sector, but with also the sugarcane companies. . . . They’ve continued to participate, but over time they went. Now, I see also [renewed] interest coming up and increasing. So yes, there is an opportunity for private involvement.”
– National stakeholder, Lusaka Province

One respondent saw the advent of the End Malaria Council as an opportunity to reach more private-sector partners.

“With the End Malaria Council, you get the private sector. You’ve had the mines, the sugar company—it’s just one sugar company, it’s just a few mines that support. But imagine if we

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a Zambia Sugar is a sugar-manufacturing company.
tapped into the mines, the farmers. We’ve got very rich farmers in Zambia. And they’re the ones that suffer the most—their farm workers get malaria because they work evening hours.”
– National stakeholder, Lusaka Province

When private-sector partners were queried about partnerships, they expressed specific interest in governmental policy that would enable the purchase of drugs and insecticide from stock that the government had bought in bulk. Currently, this only occurs in partnership with the mining sector.

“If [the NMEP is] going to do bulk buying, they may actually get it at a subsidised, slightly cheaper rate, considering actually it’s a government buying. And you allow the stakeholders like us . . . to buy it from the government at an economical price.”
– Private-sector stakeholder, Copperbelt Province

Whilst Zambia has strong existing relationships with traditional foreign donors and multilateral agencies, another possible partnership identified by stakeholders was China, whose presence in Zambia continues to grow. NMEP leadership has met with representatives from China, but the relationship has yet to be defined.

“I know [the Chinese government does] a lot of corporate social responsibility programmes, but I feel there is a need to engage them. I don’t know to what extent they’ve been engaged in relation to malaria control. . . . I see a lot of potential from that angle.”
– Private-sector stakeholder, Copperbelt Province

Recommendations

Cross-border partnerships have been established in the Zambezi region. These relationships should be strengthened and expanded to better coordinate interventions across borders and to align concerted malaria elimination efforts regionally.

Private-sector-friendly policies should go beyond the mining companies on the Copperbelt so other large industries can benefit from government bulk purchases of drugs and insecticides.

Discussions with the Chinese government regarding their potential role(s) in support of Zambia’s malaria elimination agenda should continue in order to align funding with the needs of the NMEP.
Financing

Long-term commitment of domestic funds from national programmes 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.

In Zambia, major funding sources for malaria include the US President’s Malaria Initiative; the Global Fund to Fight AIDS, Tuberculosis and Malaria; and the national government. The latter has dramatically increased its contribution in recent years from less than $1 million in 2010 to $27.9 million in 2017. In 2018, there was a contraction in domestic financing due to larger economic trends, including a downturn in the Zambian economy, but domestic financing still represented a notable 22 percent of the budget (Figure 5).

Figure 5. Zambia malaria funding by source, historic versus 2018.

Abbreviations: Global Fund, Global Fund to Fight AIDS, Tuberculosis and Malaria; PMI, US President’s Malaria Initiative; UK DFID, United Kingdom Department for International Development; UNICEF, United Nations Children’s Fund; USAID, US Agency for International Development; WHO, World Health Organization;
*Percentage is averaged across years.

Positive increases in financing for malaria were observed, but reliance on partners persisted and domestic financial constraints still hindered elimination

The 2015 stakeholder assessment was conducted at a time when Zambia’s domestic spending on malaria was rising considerably—from under $1 million in 2010 to $28.5 million in 2016. At that time, respondents saw this as a positive trend because they felt that intervention coverage was increasing along with financing. In 2019, stakeholders still felt that malaria funding had increased in recent years and that more resources were available for elimination (indeed, the launch of the National Health Insurance Scheme and the End Malaria Council reflected this); however, they felt that financial constraints still hindered elimination.
Stakeholders cited limited resources as a constraint to effective implementation of elimination activities, illustrating that whilst the funding portrait had improved, there was still a greater need to be met. Some respondents reported that limited resources resulted in districts not being able to adequately cover areas they were responsible for with an intervention.

“We don’t have enough funds to conduct all the malaria elimination activities. For example, IRS is a very expensive venture; we can’t manage as a district to do that for more than 80 percent of our households in the district.”
– District stakeholder, Eastern Province

Additionally, a key concern amongst many stakeholders was that, despite increases in financing, there was still heavy reliance on partners for funding. Stakeholders detailed how this reliance constrained them to working in specific areas or implementing specific activities, depending on what funds were available and what work donors prioritised. Furthermore, this reliance presented a risk that if partner financing declined, malaria elimination activities would be compromised.

“We can’t keep on relying on donor funding. If a donor comes and tells you, ‘No, there’s no IRS money this year,’ then [there will be] no IRS. . . . If a donor says they don’t have that money, you as a country should at least have something to start with.”
– Implementing stakeholder, Lusaka Province

“We were so much dependent on the donor funds . . . even the donor sometimes they’ll come and they’ll have a specific area they would want to work in, so it’s difficult to say, ‘No, actually let’s move to this other side.’”
– National stakeholder, Lusaka Province

Reflecting stakeholders’ low expectation that domestic funds could be mobilised, stakeholders also cited a need for diversification of funding sources to help expand and sustain funding levels. Respondents frequently cited the potential of mobilising resources from private-sector partners (see Governance section on page 21), and a few respondents cited this possibility with smaller philanthropic donors.

“The first steps have been done: we have the plan; it’s been costed; we know the gap; we have the business plan. We know what we need to achieve in the next few years. We have to innovatively mobilise resources, identify nontraditional partners.”
– National stakeholder, Lusaka Province
Some stakeholders also highlighted the challenges of coordinating funds from multiple partners, noting that poor coordination of funds or siloing of budgets further hinders the implementation of malaria activities.

“There’s some discoordination that leads to reduction in impact. We were often not using all the resources in the best way that they could be used. Different values from the different donors—it reflects in a lot of discoordination and silos at the country level.”
– Implementing stakeholder, Lusaka Province

**Recommendation**

Increased domestic funding from diverse sources and less reliance on donor funding for malaria would aid coordination, as planning would not be dependent on donor preferences and priorities. The launch of the End Malaria Council is a notable achievement since the original stakeholder report. The End Malaria Council needs to focus on addressing specific malaria programming gaps and aligning donor funding around National Strategic Plan priorities. Provincial-level End Malaria Councils need to be established in order to access local funding opportunities.

**Planning and operations**

Adequate health system capacity, infrastructure, and human resources to implement the NMESP and operational plans. Specific plans for scale-up of new approaches, products, and strategies. Realistic timeline for countrywide implementation.

Planning and operations for Zambia’s malaria elimination work are managed by the NMEP and guided by the NMESP. In 2015, stakeholders cited commodity distribution, commodity access, and community engagement amongst the planning and operations challenges. In the intervening years, Zambia has worked to increase the coverage of commodities through the use of data, more targeted application of vector control measures, and a more robust health workforce at all levels of the system. Community engagement has also increased through the establishment of malaria focal points in most districts and an expanded cadre of CHWs who have brought treatment closer to communities.

In addition to these changes that address planning and operational challenges, the NMEP has placed an increased programmatic emphasis on vector control since 2015, particularly IRS. More recent and up-to-date data are also available, with the most recent population-wide survey—the Malaria Indicator Survey—conducted in 2018, following the 2015 Malaria Indicator Survey. These more recent data continue to buttress Zambia’s long-standing commitment to using the best available programmatic and population data to inform decision-making around the intervention mix.

**Lack of adequate infrastructure in the most remote communities hindered distribution and access**

In rural areas, long distances to the nearest health facility and limited affordable transport pose an issue for both care seekers and health care providers. The issue of poor infrastructure, including lack of transport and poor road conditions, intersects with other challenges, including human resources and supply chain management.
At the community level, there are two distinct representatives of the health system: CHWs and community health assistants (CHAs). Whereas CHWs are volunteers who work solely in the community, CHAs are compensated employees, trained and supported by the Clinton Health Access Initiative as part of a formalised programme to support the government. CHAs are meant to work 80 percent of the time in the community and 20 percent in a facility. Respondents said that CHAs in Southern Province were sometimes assigned to communities more than 30 kilometres from their home facility. Because of the distance and lack of transportation, respondents reported that the health workers often stayed at the facility and worked there.

“The CHA was trained specifically to be 20 percent at facility and 80 percent at community. . . . Most want to remain at facility, because they don’t want to walk. . . . You’ll see that someone stays 30 to 40 kilometres from where they are [assigned]. . . . They are supposed to be going out sensitising the community, but they are spending more time at the facility; so as a province we are focusing on reorienting the community.”
– Provincial stakeholder, Southern Province

Covering long distances was also an issue for CHWs. Respondents noted that the situation could potentially be improved if CHWs were provided with new bicycles to replace older ones that had broken down.

“The problem CHWs complain about is transport. Some people walk long distances. The bicycles they’ve received some years back have broken down, so they sacrifice and walk.”
– District stakeholder, Southern Province

Long distances also prevented patients from easily seeking care, particularly people with compromised health, such as those who were sick with severe malaria. Because pregnant women could not receive the standard malaria drug Coartem, often they were sent to other facilities to receive the right treatment. However, because of lack of money or time, they sometimes did not travel to the other facilities. Some respondents recommended increased outreach and service delivery for these populations.

“The situation we were having is that we tell this woman who comes that because she is pregnant, you can’t give her Coartem. You tell her, ‘We’re sending you to Mpongwe, where you will be given the right treatment.’ Then she tells you, ‘Okay, let me go back home and organise money [and] I will go.’ Then you find that they don’t go. They go back home and probably they don’t have money, so they’ll just stay home. Probably the
next time you see them they’ll be very, very sick.”
– Community stakeholder, Copperbelt Province

**Recommendations**

Transportation should be expanded at the community level for referring severe malaria patients (using bicycle ambulances), moving commodities, as well as conducting household malaria testing and treatment.

Durable bicycles are critical to the CHW model of following up on positive malaria cases in the community, but there needs to be improved access to bicycle spare parts and repair services for the CHWs to reliably serve their communities.

**CHWs were spread thin across households and patients, and support for the role of CHWs was not standardised across partners**

The CHW model for malaria community surveillance was introduced in 2011, initially in Southern and Western provinces and subsequently in other areas, including Copperbelt and Eastern. CHWs trained in this approach are now in each of Zambia’s ten provinces. National guidance recommends, broadly across disease areas (not specific to malaria), a ratio of one community health worker for every 500 people. For malaria, the recommendation is one CHW for every 750 people or as the malaria burden dictates. Currently, the CHW to population ratio is about one for every 850 people in Southern and one for every 750 people in Western, given their malaria burden. Due to the stepwise rollout of malaria community surveillance to Copperbelt and Eastern, CHW activity is still lower in both provinces at this time.

CHWs are nominated by their communities to provide health care at the household level. CHWs are trained to test for and treat malaria (as well as diarrhoea and respiratory infection). For their work, CHWs receive a modest set of incentives after their initial training—a bike, talk time (data health workers also receive a cell phone), a T-shirt, and an apron. However, these volunteers receive no ongoing monetary compensation for their work.

Respondents saw the extended reach of community-based activities as a major contributor to the reduction in malaria cases in Southern Province in recent years. However, despite this extended reach, in 2019, the primary concern amongst respondents at the facility and community levels was poor operationalisation of CHW cadres, with inadequate number of staff, high turnover, and poor technical skills noted.

At the community level, stakeholders noted that CHWs were spread thin across many households and patients. Stakeholders suggested that CHWs’ performance improved when they had smaller catchment areas to serve. In particular, this was mentioned by respondents in the Copperbelt, who noted the need for continued expansion of the health worker cadres in order to reach similar levels as Southern and Western.

“It’s a very, very big challenge because when we had a meeting with them . . . some of them [told me] that they are attending to more than a hundred households. You can imagine it’s quite a very big burden. And these are people who are not on salary; it’s
on a voluntary basis. They have to attend to their business, then they later look at issues of malaria . . . they can’t manage to move around all the households. You would find that there are households which are not even visited.”
– Community stakeholder, Copperbelt Province

CHWs were also perceived as having weak technical skills, particularly amongst respondents in Eastern Province, a late implementer of the CHW programme. Respondents cited a need for more technical knowledge, sensitisation, and training of CHWs; the latter also was reported as a way to attract and retain personnel. Whilst the CHA cadre undergoes much broader and longer training than CHWs, their numbers are limited compared with the need.

“We have a number of community health workers in the province, but not all of them have been trained to diagnose and treat this case at community level. We need, I think, much more training for community health workers and also much support in terms of the other duties so that this is enhanced at the community level.”
– Provincial stakeholder, Eastern Province

Some respondents noted that the lack of compensation may affect CHW motivation.

“The team is quite big, but the most active ones, if we lose them, it’s very difficult to replace them. The other ones will come in because maybe they are interested in getting something.”
– District stakeholder, Copperbelt District

“I don’t volunteer. I get paid, but we expect other people to work and volunteer, and then we want to be surprised when they stop. . . . How many of us would work for free? We expect the poorest of the poor to do it. I don’t blame [the CHWs]. We need more of them because, actually, where there are more of them we get care to the people much quicker.”
– National stakeholder, Lusaka Province

Recommendations

The number of CHWs should continue to be increased to expand access to prompt testing and treatment. The NMEP and its partners are addressing this as training, equipping, and deploying of CHWs are ongoing. An estimated 10,000 CHWs had been trained at the time the interviews took place. The NMEP estimates that 36,000 are required countrywide.
Recommendations

The starter kit for CHWs—a package of essential supplies that includes a T-shirt, a cap, an apron, a bike, registers, and talk time—needs to be standardised across partners.

There continues to be a push for support for CHWs beyond the current starter kit. Increasing the number of CHAs trained each year and providing them consistent compensation would help to fill the health worker gap.

Challenges persisted in allocation and distribution of commodities—such as drugs, RDTs, and bednets—from the central level to the community level of the health system

The limited reach of supplies to the community level of the health system was a key constraint cited in 2015 that was echoed by respondents in 2019. The perception amongst stakeholders in both surveys was that commodities such as drugs, rapid diagnostic tests, and bednets were available at the national level but were not always forecasted or distributed adequately at the district or facility level.

“That erratic supply of commodities, both drugs for treatment as well as the reagents for diagnostics, is something that I’ve experienced as a clinician. . . . For severe malaria, we’re using artesunate injectable. Once in a while, during the year, they may be out of stock and out of stock just at the facility. Probably at the central level, it’s there. . . . Because of these weak health systems, we have that type of thing that I experience that affects the goals of elimination.”
– National stakeholder, Lusaka Province

Infrastructure challenges contributed to supply chain management issues. Respondents to the 2019 survey noted that communities targeted for outreach and intervention were often quite far, that roads to access these communities were often in poor condition, and that reach to those areas was hindered by poor transport.

Key stockout issues included:

- RDT stockouts, though respondents had seen improvements due to support from partners (leading to the concern of reliance on partners).
- Shortages of IRS equipment—in particular, chemicals—and personnel.
- Insecticide-treated net stockouts, though respondents also reported recent improvement.
- Drug stockouts, particularly those for vulnerable populations (such as pregnant women), including Coartem, quinine, and Fansidar.

“Again, the trickling down to the facilities. You’ll find [the facility] has no Coartem, it has no RDTs. . . . That can be
something that can go on for two months if there’s no effort by anybody to have that point-of-care diagnostic equipment and treatment delivered to the facility. I think that is one area that we’ve really supported the districts in terms of getting that supply chain maintained.” – Implementing stakeholder, Lusaka Province

**Recommendation**

The logistics management system should be strengthened, including at the community level, to help ensure adequate forecasting, allocation, and reach of commodities.

**Community engagement and ownership were paramount when introducing new interventions and delivering messages about malaria elimination**

Both 2015 and 2019 respondents perceived social and behaviour change communication as not only crucial in ensuring uptake of interventions, but also important to sustaining progress. Southern Province provides an example of what intensified social and behaviour change communication efforts look like. There, community engagement work has prioritised the gatekeepers: traditional and religious leaders who are very influential in rural areas. Messages carry much further when delivered by messengers trusted by the people. Village meetings use drama groups, a popular communication channel. Where appropriate, community radio or vehicles with public address systems reinforce messages in the local language. In areas with relatively high resistance to interventions, or when introducing a new intervention, community engagement also focuses on often underserved groups: mobile populations and students.

Respondents deemed community ownership of a programme to be critical for sustainability, with many respondents sharing the sentiment that all Zambians should be involved and educated in the elimination goal and activities. Zambia's current advocacy campaign, with the slogan “Malaria Ends With Me,” reflects the understanding that if communities are not engaged, uptake of interventions will be low.

“Winning in a fight is not an easy thing and it cannot be achieved by one person... Really, what we need is engaging each and every Zambian to say, ‘This is the biggest problem that we have. We feel [a solution to] this problem is something that is achievable if we can put in our heads together.’”

– District stakeholder, Eastern Province

Although the message of elimination has been widely promoted to date, there is a need to address barriers to social and behaviour change communication, with key issues being language, literacy levels, and reach. Most social and behaviour change communication materials are published in English. Although many can read English, there is a demand for materials to be translated into the local language.
“I receive monthly reporting forms from [the] district, and they are often talking about materials needing to be translated. The communities are asking for them.”
– Provincial stakeholder, Southern Province

Numerous respondents also emphasised that traditional leaders like chiefs and headmen were influencers who should be engaged in order to effectively spread the malaria elimination message to communities. Without them on board, CHWs and district staff noted there would be trouble with uptake of any given intervention.

“What I’ve come to understand, the years that I’ve stayed here, people are . . . very loyal to traditional leaders. They are more loyal to traditional leaders than any other. If traditional leaders are involved . . . in any programme, it is bound to succeed. Because word that comes from traditional leaders is taken very, very seriously than a word that would come from any other. No matter what language you use or your education, to them it doesn’t matter. But the word that comes from a traditional leader is followed very, very keenly.”
– District stakeholder, Eastern Province

Last, respondents noted specific areas that needed improved messaging, including bednet use, IRS, and drug adherence. Common misconceptions and complaints involved:

- Bednets: CHWs reported that community members complained of bednets being too hot to sleep under.
- IRS: CHWs reported that community members complained that IRS attracts bugs and smells bad.
- Drug adherence: CHWs noted that some community members will take a partial course of drugs, and once the symptoms are alleviated, they will save the remainder of the drugs for another episode or someone else in the household.

Without messaging to address these misconceptions and attitudes towards malaria interventions, stakeholders felt that communities would not accept the interventions, contributing to diminished progress towards elimination. Community acceptance of interventions was also a challenge noted in the 2015 survey, particularly around resistance to bednets and IRS.

“Even acceptance of these interventions . . . you would find that you’ll go to this area, they don’t even understand what it is or they have a misconception, so the acceptance rate will be low. We need to improve the acceptance rate; then I think we can improve the outcome of the programme. As long as the
acceptance rate is low, then we’re fighting a losing battle.”
– District stakeholder, Southern Province

Recommendations

Messaging must continue to be localised and tailored to the population and geography to ensure intervention uptake and to address barriers (e.g., specific messages to dispel common myths and misperceptions). The audiences need to be expanded to include school-aged children, which could be part of a larger partnership opportunity with the Ministry of Education. In addition, mobile populations, who are often missed during malaria campaigns, need to be included on messaging. Messages for mobile populations should include how they can access services.

As malaria interventions continue to be expanded (e.g., IRS and mass drug administration), Zambia can build on its experience in community engagement when introducing a new activity.

Data use for planning and resource allocation has increased, but data reporting and data quality need continued attention

Since 2015, data have become an increasingly integral part of the NMEP’s approach; the 2019 assessment showed a corresponding increase in the number of respondents discussing challenges and opportunities with data. A malaria rapid reporting system is in place that uses mobile phones and an open-source data platform (District Health Information Software 2 [DHIS2]) to collect and send data in real time to a centralised server, where data can be quickly accessed, analysed, and used to inform and direct a targeted response. This platform is linked to the malaria scorecard of activities and indicators that is updated, presented, and discussed each month at the NMEP partner directorate meeting. However, the effectiveness and accuracy of the rapid reporting system largely depend on the human element (i.e., communication and coordination amongst staff) and further refinement of the tool. Respondents cited wide-ranging and varied data needs. They showed an intense interest in further using data systems but also a substantive need to improve data systems.

Data use was a frequent activity cited amongst stakeholders, with most reporting that they reviewed or looked at data. Amongst those, around half reported using the data to make decisions about where and how to administer interventions and a few reported using data to track progress towards the elimination goal. Keen interest in data use and activities was reported across all levels of stakeholders.

“I think that data is very relevant to us, not just at the province but to various levels. Normally, when we have meetings, whether it is provincial-regulated meetings or district-regulated meetings, we would use the same malaria data to inform us—to say this is where we are in terms if incidents and what we need to do in order for us to make improvements. Even when we’re planning for other levels, we also use this malaria data to plan and inform us on the next decision to be made.”
– Provincial stakeholder, Eastern Province
“Using our data, we know which areas are supposed to take which interventions or which type of resources. Like even the quantities in terms of malaria treatment kits and testing kits.”
– Community stakeholder, Eastern Province

Respondents also cited the need for improved data reporting. At the community level, respondents typically conveyed that health workers were overburdened and that more time and human resources were needed to adequately engage data systems (a minority of people reported no engagement in data collection/reporting). At the district level and above, stakeholders cited a wide range of needs at all levels of the health system. Improved systems were the most commonly cited, which included better tools, more granularity, and more reliable connectivity. Dramatic system upgrades, such as an entirely new electronic system, were also proposed.

“The reporting system [could be strengthened] whereby it can be in real time, whereby even the volunteers, the community health workers, they can report maybe electronically because mostly, they just use paper-based kind of reporting.”
– Community stakeholder, Eastern Province

Even with an ideal data infrastructure, data are only reliable if they are of high quality. Data quality was cited as a potential area for improvement by stakeholders, particularly at the national level and amongst implementers and private-sector partners. Although data quality audits do occur, the system could be expanded. In Southern Province, for example, each facility is audited once every two years.

“If you want to improve the reporting of malaria, it will be very good to have a lot of quality checks; that’s number one. . . . If I took 200 tests, I should see the names of the 200 people that were tested in those 200 tests.”
– National stakeholder, Lusaka Province

“There are gaps . . . we’ve seen that not all the data that is collected on the ground gets into DHIS or HMIS [health management information system] and also some quality issues. I think we need to have some quality controls somewhere. Sometimes you see that because of maybe not having data audits, we see numbers change from nowhere . . . I think we need to invest in that.”
– Implementing stakeholder, Lusaka Province
**Recommendations**

Improved systems and infrastructure for data integration and data use are recommended. Suggestions vary, but these could include improved standardisation of data use and reporting at all levels, as well as automation, electronic tools, and better decision-making tools.

There is a comprehensive and standardised system in place for data review meetings, data quality audits, mentorship, and technical supportive supervision. These elements need to be reviewed to ensure the continued flow of timely and accurate malaria information at all levels.

**Evidence base**

*Sufficient evidence around new tools and approaches to support policy change and national programme adoption.*

As in 2015, this stakeholder assessment sought to find areas where data were insufficient or could be bolstered to support current strategies and approaches and/or guide future policy changes. In 2019, stakeholders often noted gaps in data for under-reached or under-reported populations as well as data on uptake and implementation of interventions.

**There were gaps in data for under-reached or under-reported populations**

A key issue noted by respondents was the increased burden placed on facilities along Zambia’s porous border areas due to cross-border treatment seekers from neighbouring countries such as Mozambique, Angola, and the Democratic Republic of the Congo.

> “Whatever effort we’re putting across is compromised because we’re still receiving cases from across the border.”
> 
> – District stakeholder, Eastern Province

Respondents also conveyed that this was not strictly a problem on the Zambian side of the border as Zambians who live closer to a facility that is located in another country might go there. However, whilst this challenge was mentioned by numerous respondents, it was expressed anecdotally, underscoring the need to collect more data on treatment seekers. In particular, considering the transient nature of populations such as fishermen and seminomadic groups, granular data on travel history are needed to best understand where patients are coming from and where to direct efforts.

In 2019, interviews also sought to capture perceptions about an under-reached population within Zambia’s borders—adolescents (aged 10 to 19 years), a demographic not specifically captured in 2015. Though they cited almost no evidence, respondents felt adolescents were particularly at risk of malaria. This was largely due to behavioural constraints: adolescents were considered to be mobile, to live outside the parental home, and to not adhere to treatment or prevention guidelines.

> “The challenge is that [adolescents are] mobile, because you do a programme for them [and] you go there the following day—
they’re not there, they’ve gone, they’ve moved. Either they’ve gone to college, they’ve gone to school . . . they’re very mobile so it’s very difficult. They’re not a group where you can plan for them long-term to say, ‘Here, this is what we’re going to do.’”

– District stakeholder, Copperbelt Province

When asked to identify which household member would least likely use a bednet, the vast majority of respondents felt that, with limited bednets within a household, there were “not enough” for adolescents since children and pregnant women often were given priority with regard to sleeping spaces underneath a net. Respondents thought that adolescents often slept outside the main area of homes that had bednets.

“My concern is adolescents because traditionally here, you all live together in the same room until you’re sort of preadolescent. Then those will move out into another little house or hut near the household. There’s also not enough bednets for them. It’s the adolescent, I think, that don’t get the bednets. I think pretty much other people do.”

– Implementing stakeholder, Lusaka Province

Much like responses regarding cross-border treatment seekers, interviewees’ responses regarding adolescent net use were usually speculative or anecdotal. The fact that no concrete data exist emphasises the need to not only target adolescents but to collect and disaggregate data that reflect the 10- to 19-year-old demographic.

“Maybe we can put an indicator in our HMIS just to monitor that age group because in the HMIS there’s only ‘under fives’ and ‘above five.’” – National stakeholder, Lusaka Province

Similar data could be sought from health facilities to improve understanding of where adolescents are accessing malaria treatment and prevention interventions, and to identify barriers and channels to strengthen access and uptake.

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<tr>
<th>Recommendation</th>
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<tr>
<td>More disaggregated data (by age and gender) are needed to uncover subpopulation patterns to better understand which populations are at risk/high burden, particularly patterns among adolescents, seasonal migrants, and those in cross-border areas. This will help to tailor messaging, campaign intervention timing, and commodity uptake.</td>
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There were perceived challenges in intervention coverage and uptake (e.g., bednets and IRS), but statistics or monitoring data for uptake and usage were not available

Bednet uptake and usage were widely perceived to be concerns by respondents, with net misuse (for fishing) commonly cited as a problem. A minority of people feared that even amongst target populations (like pregnant women), there was non-usage.

“When you go in the communities, people . . . may keep the mosquito net for long without even hanging. You interview them, they say, ‘No, it causes a lot of itching, it [causes] a lot of scratching; so that’s why this mosquito net is not being used.’”
– District stakeholder, Eastern Province

“We can say we still have a challenge because for the communities that are near the lake, those are fishing nets for them. Although we are doing our sensitisation, but we still have a challenge.”
– District stakeholder, Southern Province

Usage statistics or monitoring data were not available for bednets. If addressed, this gap could provide national malaria programmes with a clearer idea of how to focus behaviour change communication efforts.

For IRS, respondents perceived that potential improvements could be made, such as using different chemicals to increase efficacy, setting higher targets, or spraying more frequently.

“If I had my way . . . I would [spray] twice a year because we’ve been told that the insecticide is only effective for six months. I believe even as we are getting towards six months, the effectiveness is not as good as in the first month. For me, I would do a programme twice a year.”
– District stakeholder, Southern Province

Recommendations

More data are needed on intervention coverage and uptake, particularly for insecticide-treated nets, in order to target behaviour change communication efforts and enhance the efficacy of interventions.

Zambia should build on the strong IRS evidence base to collect more data to inform targeted indoor residual spray delivery (e.g., coverage, timing, frequency, and chemicals).
Tool development

**Necessary product development for new tools.**

Key to attaining malaria elimination is the development of new tools that can potentially accelerate the elimination timeline. To that end, respondents were asked what was needed to continue progress towards elimination. Respondents typically cited the continuing need for a full spectrum of interventions, including bednets, IRS, integrated community case management, drugs, larval source management (LSM), and community sensitisation. Interestingly, most respondents did not cite a need for new tools to achieve elimination; instead they cited a need for a consistent and sustained approach with the current tools. Respondents also said that sustained buy-in from all Zambians was key.

“There is a whole list of programmes, and we could talk about mass drug administration and focal drug administration and test and pre-programmes and all the things that you know are going in this country. I think we need to concentrate on all those. That’s going to take money and personnel, and it’s going to take acceptance. I don’t think in any country and in the world and in any disease you’re going to get a disease eliminated without the community part of it.” — Implementing stakeholder, Lusaka Province

When new tools were mentioned, respondents felt more of the current set of diagnostic tools were needed, including more widespread availability of microscopy and development of RDTs that were more sensitive and could detect other parasite strains.

“I would say from somewhere around 2016 to date, the RDTs haven’t been a challenge; facilities are usually well stocked. Then, when it comes to microscopy, in Sinda we are only able to do microscopy in about 7 of our 24 facilities. . . . The rest, it’s only RDT.” — District stakeholder, Eastern Province

More granular and disaggregated data were also desired within the DHIS system. Respondents cited data at community level as helpful for more specific identification and targeting of issues.

“If it’s reported from the health centre catchment areas individually, and then either the trained community health workers are provided with the necessary resources to do that reporting at that level, then even our planning and the direction
Overall, most respondents cited the need for sustained expansion of existing tools over the need for developing new tools.

**Enthusiasm for additional vector control interventions was high, but not all interventions may be appropriate for the context**

In 2015, there was a lot of discussion around new drug-based approaches for malaria elimination. In 2019, however, conversations were more focused on existing tools not widely used. Multiple respondents, particularly in Eastern Province, noted that LSM was something that the government should consider exploring further.

“For us to achieve eliminating malaria, we need to employ all the preventive measures. But I think a major gap [is] . . . we have not been doing larviciding. And, you know, the other way of eliminating malaria is at the larval stage. So if all the breeding sites are identified and we larvicide all the breeding sites.”
— District stakeholder, Eastern Province

The World Health Organization recommends LSM as a supplementary strategy to core interventions, such as long-lasting insecticide-treated nets and IRS. Along with those interventions (as well as intermittent preventive treatment during pregnancy and case management), LSM is indeed a part of the NMEP’s aggressive, integrated approach to reduce malaria and malaria-related burden in the country. However, LSM has not been widely implemented as, per the World Health Organization, it can only be used in specific settings where malaria vector mosquitoes breed in permanent or semipermanent breeding habitats that can be accessed easily and “are few, fixed, and findable.” Thus, it is mostly suitable in urban areas as opposed to rural areas such as Eastern Province, where the breeding habitats are too numerous and unstable, especially in the wet season.6

The NMEP views LSM as a useful intervention when implemented in accordance with World Health Organization recommendations. LSM can aid the reduction of both indoor- and outdoor-biting mosquitoes and, in the malaria elimination phase, the reduction of the mosquito population in malaria hot spots. In 2018, the NMEP launched its *Guidelines for Larval Source Management 2018*, which provides a framework within which LSM activities can be managed and effectively executed. It also may help to clarify appropriate uses of LSM amongst stakeholders.

**Recommendation**

Guidance around where and how to most effectively target environmental improvements, larval source management, and drain clearing should be clarified to maximise impact.
Conclusion and next steps

This Zambia stakeholder assessment report and its supporting qualitative data are meant to identify challenges and opportunities for accelerating malaria control and elimination and to inform future programme evaluation and strategy development. Additionally, the interviews conducted as part of this assessment are meant to improve the NMEP’s understanding of where adolescents are accessing malaria treatment and prevention interventions and to identify barriers and channels to strengthen access and uptake.

Zambia made significant progress against the recommendations of the 2015 baseline stakeholder assessment. As the country continues to pursue malaria elimination, it would be beneficial to conduct these assessments at regular intervals to monitor the opinions of the country’s diverse but committed malaria community. Zambia’s national slogan “Malaria Ends With Me” is about everyone having a role to play to reach a malaria-free future. Revisiting those roles—and the stakeholders behind them—contributes to the evidence base that is foundational to the country’s ambition to end malaria. Future assessments should aim to include even more voices and to have a greater geographic reach.
Appendix 1. Stakeholder interview questions

District and community interview script: 2019 stakeholder assessment

<table>
<thead>
<tr>
<th>Interviewee Background</th>
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<tbody>
<tr>
<td>1. For how long have you been in your position?</td>
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<td>2. What motivated you to work in this field?</td>
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<table>
<thead>
<tr>
<th>Assessment Goal</th>
<th>Assess stakeholder knowledge of and perceptions about (1) Zambia’s progress toward national elimination targets and (2) opportunities and barriers to increasing the prominence of malaria on the national health agenda</th>
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<tbody>
<tr>
<td>3. What do you know about Zambia’s current malaria elimination goal? <em>(if they don’t know about current goal: Zambia’s national strategy calls for malaria elimination by 2021)</em></td>
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<tr>
<td>o [probe]: How do you feel about the progress to achieve this currently?</td>
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<td>o [probe]: What would success look like to you if this goal were achieved?</td>
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<td>4. Has your confidence in Zambia’s ability to eliminate malaria increased or decreased in the past three years?</td>
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<td>o [probe]: why so?</td>
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<td>5. Do you think that malaria is a higher priority now than it was three years ago?</td>
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<td>o [probe]: How often do you see malaria in your district/community?</td>
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<td>o [probe]: What are the top health issues in your district/community?</td>
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<tr>
<td>6. In the past three years, what have been the greatest challenges your district/community has faced in the malaria effort?</td>
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<td>o [probe]: have you addressed these challenges?</td>
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<tr>
<td>7. Moving forward, what do you see as the most important things your district/community can do to further reduce the malaria burden?</td>
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<table>
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<tr>
<th>Assessment Goal</th>
<th>Assess stakeholder perceptions around access to and use of malaria interventions</th>
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<tr>
<td>8. Can you tell me about any challenges with accessing or using tools to fight malaria?</td>
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<td>o [probe]: Can you tell me about challenges with accessing or using drugs?</td>
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<tr>
<td>o [probe]: What about with malaria testing?</td>
<td></td>
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<tr>
<td>o [probe]: What about with indoor spraying?</td>
<td></td>
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<tr>
<td>o [probe]: What about with bed nets?</td>
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<tr>
<td>o [probe]: What about with attitudes and behavior?</td>
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<tr>
<td>9. What other diseases do CHWs treat in your area?</td>
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<td>10. Do they have drugs or diagnostics to treat other diseases?</td>
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</table>
11. Do you experience challenges with people coming to your district/community from neighboring countries (in Nyimba ask about Mozambique, in Siavonga ask about Zimbabwe, in Ndola ask about DRC)
   o [probe]: If yes, what are they? If no, why not?

12. What do you need to get rid of malaria in Zambia?
   o [probe]: Where do you see potential gaps?
   o [probe]: Do people working in the community to help eliminate malaria, like CHWs and malaria focal persons, have enough resources and training?
     ▪ Are there enough people?

<table>
<thead>
<tr>
<th>Assessment Goal</th>
<th>Document perceptions around adolescent and pregnant women access and use of malaria interventions and explore opportunities/tools that could be useful to improve access and use among adolescents (e.g. targeted school-based delivery, BCC, private sector involvement, integrating with other health services e.g. reproductive)</th>
</tr>
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</table>

13. Can you tell me about what you’re doing to help protect adolescents [persons aged 10-19] from malaria?

14. Do you think there are ways in which adolescents are at particular risk from malaria?
   o [probe]: What are the reasons that adolescents are more or less likely to get malaria than others in their family?
   o [probe]: What are the reasons that adolescents might be more or less sick when they get malaria than others in their family?
   o [probe]: Why?/why not?

15. What challenges stand in the way of providing better protection for adolescents?
   o [probe]: What messages do they receive about malaria?

16. What do you think if I say that adolescents are less likely to use bed nets?
   o [probe]: Less likely than children?
   o [probe]: Than pregnant women?
   o [probe]: Than the general population?
   o [probe]: Why would I be right or wrong?
   o [probe]: And what is the reason for this?

17. How can you increase availability or access to bed nets for adolescents?
   o [probe]: How can you get adolescents to use bed nets when they have them?

18. If there are bed nets available in a household – who uses them first?
   o [probe]: Who is last to sleep under one?

19. Can you tell me about the challenges of providing malaria treatment to adolescents?
   o [probe]: Do you know of any malaria related campaigns that target adolescents?
   o [probe]: School based distribution?

20. Could you tell me about what you are doing to help protect pregnant women from malaria?

21. Do you think there are any ways in which pregnant women are at particular risk from malaria?
22. What do you think if I say that pregnant women are less likely to use bed nets?
   o [probe]: Less likely than children?
   o [probe]: Than the general population?
   o [probe]: Why would I be right or wrong?
   o [probe]: And what is the reason for this?

23. How can you increase availability or access to bed nets for pregnant women?
   o [probe]: How can you get pregnant women to use bed nets when they have them?

24. Can you tell me about the challenges of providing malaria treatment to pregnant women?

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<tr>
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<th>Review health management information (HMIS) and National Malaria Elimination Centre (NMEC) data relevant for malaria intervention implementation and elimination progress</th>
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<td>25. How do you find the process of collecting and reporting malaria data?</td>
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<td>26. How could the reporting process be improved to make it easier for you to collect or report data?</td>
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<tr>
<td>27. How do you communicate with your supervisor?</td>
<td></td>
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<tr>
<td>28. How do you communicate with people that report to you? (i.e. CHWs)</td>
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<tr>
<td>29. How do you use DHIS2/HMIS (malaria) data to inform decisions about planning malaria control?</td>
<td></td>
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<td>30. What information or support would be useful to use this data more effectively?</td>
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| 31. Where in Zambia will it be hardest to control and eliminate malaria?  
   o [probe]: why do you think it would hardest to control or eliminate there? |
| 32. What tools will be necessary to achieve and maintain elimination in these areas?  
   o [Probe]: are new tools required?  
   ▪ If so, which ones and why? |
| 33. How do you receive information about health in your community? |
| 34. What malaria messages are effective in your community? |
| 35. What role do traditional leaders play in efforts to reduce malaria? |
36. Are there other people we should talk with in your district/community?
37. Is there anything else you’d like to share from your experience working on malaria?

Thank you for taking the time to speak with us. The interview is now complete. Do you have any questions for us?

National interview script

2019 Stakeholder Assessment

Interview Script
NATIONAL and PROVINCIAL STAKEHOLDERS

<table>
<thead>
<tr>
<th>Interviewee Background</th>
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<tbody>
<tr>
<td>1. For how long have you been in your position?</td>
</tr>
<tr>
<td>2. What motivated you to work in this field?</td>
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<table>
<thead>
<tr>
<th>Question</th>
<th>Response</th>
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<tbody>
<tr>
<td>3. What do you know about Zambia’s current malaria elimination goal? (if they don’t know about current goal: Zambia’s national strategy calls for malaria elimination by 2021)</td>
<td>○ [probe]: How do you feel about the progress to achieve this currently? ○ [probe]: What would success look like to you if this goal were achieved?</td>
</tr>
<tr>
<td>4. Has your confidence in Zambia’s ability to eliminate malaria increased or decreased in the past three years?</td>
<td>○ [probe]: why so?</td>
</tr>
<tr>
<td>5. Do you think that malaria is a higher priority now than it was three years ago?</td>
<td>○ [probe]: How is malaria prioritized against other national health and development priorities (i.e., HIV, water and sanitation, education)?</td>
</tr>
<tr>
<td>6. In the past three years, what have been the greatest challenges your organization has faced in the malaria effort?</td>
<td>○ [probe]: have you addressed these challenges?</td>
</tr>
<tr>
<td>7. Moving forward, what do you see as the most important things your country/organization can do to further reduce the malaria burden?</td>
<td></td>
</tr>
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</table>
8. Can you tell me about any challenges with accessing or using tools to fight malaria?
   - [probe]: Can you tell me about challenges with drugs and drug supply management?
   - [probe]: What about with diagnostics and diagnostic supply management?
   - [probe]: What about with indoor spraying?
   - [probe]: What about with bed nets?
   - [probe]: What about with malaria personnel (capacity, skillsets, reporting/supervision)

9. What opportunities do you see to improve coordination among different groups working in malaria?

10. What existing regional coordination mechanisms for malaria among neighbouring countries are you familiar with?
    - [probe]: If any, how do you think they are working?
    - [probe]: How could they be working better?

11. What are the challenges do you experience in working with neighbouring countries in the region?

12. What resources are needed to realize a malaria-free Zambia?
    - [probe]: Where do you see potential gaps?
    - [probe]: Where do you see other sources of funding emerging as Zambia moves towards elimination?
    - [probe]: What role do you see the Chinese government and Chinese businesses playing in malaria efforts in Zambia?
    - [probe]: Do people working in the community to help eliminate malaria, like CHWs and malaria focal persons, have enough resources and training?
      - Do you see any gaps with human resources?

13. How can businesses be involved in malaria elimination efforts?
    - [probe]: can you give an example?

14. Can you tell me about what you’re doing to help protect adolescents [persons aged 10-19] from malaria?

15. Do you think there are any ways in which adolescents are at particular risk from malaria?
    - [probe]: What are the reasons that adolescents are more or less likely to get malaria than others in their family?
    - [probe]: What are the reasons that adolescents might be more or less sick when they have malaria than others in their family?
    - [probe]: Why?/why not?

16. What challenges stand in the way of providing better protection for adolescents?
    - [probe]: What messages do they receive about malaria?
17. What do you think if I say that adolescents are less likely to use bed nets?
   o [probe]: Less likely than children?
   o [probe]: Than pregnant women?
   o [probe]: Than the general population?
   o [probe]: Why would I be right or wrong?
   o [probe]: And what is the reason for this?

18. How can you increase availability or access to bed nets for adolescents?
   o [probe]: How can you get adolescents to use bed nets when they have them?

19. If there are bed nets available in a household – who uses them first?
   o [probe]: Who is last to sleep under one?

20. Can you tell me about the challenges of providing malaria treatment to adolescents?
   o [probe]: Do you know of any malaria related campaigns that target adolescents?
   o [probe]: School based?

21. Could you tell me about what you are doing to help protect pregnant women from malaria?

22. Do you think there are any ways in which pregnant women are at particular risk from malaria?
   o [probe]: What are the reasons that pregnant women are more or less likely to get malaria than others in their family?
   o [probe]: What are the reasons that pregnant women might be more or less sick when they malaria than others in their family?
   o [probe]: Why?/why not?

23. What do you think if I say that pregnant women are less likely to use bed nets?
   o [probe]: Less likely than children?
   o [probe]: than the general population?
   o [probe]: Why would I be right or wrong?
   o [probe]: And what is the reason for this?

24. How can you increase availability or access to bed nets for pregnant women?
   o [probe]: How can you get pregnant women to use bed nets when they have them?

25. Can you tell me about the challenges of providing malaria treatment to pregnant women?

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28. How do you use DHIS2/HMIS data to inform decisions about planning malaria control?

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| 30. Where in Zambia will it be hardest to control and eliminate malaria?  
  - [probe]: why do you think it would hardest to control or eliminate there? | |
| 31. What tools will be necessary to achieve and maintain elimination in these areas?  
  - [probe]: are new tools required?  
    - If so, what kinds of tools and why? | |
| 32. What specific messages could help mobilize communities for malaria elimination and increase their interest for new tools and approaches? | |
| 33. Is there anything else you’d like to share from your experience working on malaria? | |

*Thank you for taking the time to speak with us. The interview is now complete. Do you have any questions for us?*
Appendix 2: Thematic codebook

MACEPA codebook

Thematic coding

ELIMINATION (ELIM)
1. Elimination target (ELIM_TARG)
   Definition: Knowledge or perceptions about Zambia’s progress towards elimination targets (including lack of knowledge)
   Use: Responses to question, “What do you know about Zambia’s current malaria eliminations goals?”
   Do not use: For general knowledge about elimination that does not relate to current targets
   Example: “I have never heard that we have to finish malaria by 2021”

2. Elimination confidence (ELIM_CONF)
   Definition: Confidence in Zambia’s ability to eliminate malaria
   Use: Responses about confidence increasing or decreasing
   Example: “The confidence has gone up because nongovernmental organisations have come in to help and brought new ways to help us eliminate malaria.”

3. Elimination priorities (ELIM_PRIOR)
   Definition: Priority of malaria elimination in Zambia
   Use: For perceptions related to current prioritisation of malaria elimination in Zambia
   Do not use: For responses about what should be prioritised (see ELIM_SUGG)
   Example: “If the larval source management can be prioritised, that can be very good.”

4. Elimination opportunities (ELIM_OPPS)
5. Elimination area (ELIM_AREA)
6. Elimination change (ELIM_CHG)

PARTNERSHIP AND COORDINATION (PART)
7. Partnership and coordination opportunities (PART_OPPS)
8. Regional coordination (PART_REG)
9. Private-sector involvement (PART_PRIV)
10. International coordination (PART_INT)
   1. International coordination (PART_CHINA)

INTERVENTIONS (INT)
11. Intervention needs (INT_NEED)
12. Intervention—non-malaria (INT_NON)
13. Intervention—cross-border (INT_XBO)
14. Intervention—net priority (INT_NET)

ADOLESCENTS (ADO)
15. Adolescent work (ADO_WORK)
16. Adolescent risks (ADO_RISK)
17. Adolescents’ bednet use and access (ADO_NETS)
18. Adolescents’ opportunities (ADO_OPPS)

PREGNANT WOMEN (PREG)
19. Pregnant women (PREG_WORK)
20. Pregnant risks (PREG_RISK)
21. Pregnant bednet use and access (PREG_NETS)
22. Pregnant opportunities (PREG_OPPS)

DATA SYSTEMS, HEALTH MANAGEMENT INFORMATION SYSTEM/NATIONAL MALARIA ELIMINATION CENTRE (DATA)
23. Reporting process (DATA_REP)
24. Data system needs (DATA_NEEDS)
25. Data use (DATA_USE)
26. Communication (DATA_COM)

RECOMMENDATIONS
27. Recommendations—adolescents (RECS_ADO)
28. Recommendations—bednets (RECS_NET)
29. Recommendations—community engagement/sensitisation (RECS_CE)
30. Recommendations—diagnostics/diagnostic supply managements (RECS_DIAG)
31. Recommendations—drugs /drug supply management (RECS_DRUG)
32. Recommendations—facility locations/accessibility (RECS_FAC)
33. Recommendations—indoor spraying (RECS_IRS)
34. Recommendations—malaria personnel (RECS_PERS)
35. Recommendations—migration (RECS_MIG)
36. Recommendations—pregnant women (RECS_PREG)
37. Recommendations—resources/funding (RECS_FUND)
38. Recommendations—supply chain/logistics (RECS_SUPP)

SOCIAL BEHAVIOUR CHANGE AND COMMUNICATION (SBC)
39. Effective messages (SBC_EFF)
40. Messengers (SBC_MESS)

OTHER PARENT CODES
41. Challenges (CHAL)
42. Challenges—adolescents (CHAL_ADO)
43. Challenges—community engagement/sensitisation (CHAL_CE)
44. Challenges—drugs/drug supply management (CHAL_DRUG)
45. Challenges—diagnostics/diagnostic supply management (CHAL_DIAG)
46. Challenges—facility locations/accessibility (CHAL_FAC)
47. Challenges—indoor spraying (CHAL_IRS)
48. Challenges—bednets (CHAL_NET)
49. Challenges—malaria personnel (CHAL_PERS)
50. Challenges—supply chain/logistics
51. Challenges—migration (CHAL_MIG)
52. Challenges—pregnant women (CHAL_PREG)
53. Challenges—resources/funding (CHAL_FUND)
54. Challenges—supply chain/logistics (CHAL_SUPP)
55. No challenges (CHAL_NO)
56. Working well (WORK_WELL)
57. Recommendations (RECS)
58. Recommendations—policy (POL)
59. Policy (BB_POL)
60. Financing (BB_FIN)
61. Tool development (BB_TOOL)
62. Evidence base (BB_EVID)
63. Planning and operations (BB_PLAN)
64. Governance (BB_GOVERN)
References


