

The following document is an abbreviated malaria operational plan. The principles guiding development of this document—country-led, inclusive, consultative with a broad audience, and transparent—are consistent with best practices that the U.S. President’s Malaria Initiative (PMI) has instituted since its inception. While an in-depth background of malaria in this country can be found in the detailed [FY 2018 malaria operational plan](#) on [pmi.gov](#), this abbreviated document provides a high-level overview of PMI’s program in this country, including key strategic updates, country data and progress updates, and a detailed list of activities to be supported with FY 2019 U.S. Government PMI funding.

This abbreviated malaria operational plan has been approved by the U.S. Global Malaria Coordinator and reflects collaborative discussions with the national malaria control programs and partners in country. The final funding available to support the plan outlined here is pending final FY 2019 appropriation. If any further changes are made to this plan it will be reflected in a revised posting.



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PRESIDENT'S MALARIA INITIATIVE

Zimbabwe

Abbreviated Malaria Operational Plan FY 2019

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ABBREVIATIONS and ACRONYMS

ACT	Artemisinin-based combination therapy
ANC	Antenatal care
DDT	Dichlorodiphenyltrichloroethane
DHIS2	District Health Information System 2
DHS	Demographic and Health Survey
EPI	Expanded Program on Immunization
EPR	Epidemic Preparedness and Response
EUV	End use verification
FY	Fiscal year
Global Fund	Global Fund to Fight AIDS, Tuberculosis and Malaria
GoZ	Government of Zimbabwe
IPTp	Intermittent preventive treatment for pregnant women
IRS	Indoor residual spraying
ITN	Insecticide-treated mosquito net
LMIS	Logistics Management Information System
MICS	Multiple Indicator Cluster Survey
MIP	Malaria in pregnancy
MIS	Malaria Indicator Survey
MoHCC	Ministry of Health and Child Care
MOP	Malaria Operational Plan
MSP	Malaria strategic plan
NMCP	National Malaria Control Program
OPs	Organophosphates
OR	Operational research
PMI	U.S. President's Malaria Initiative
RAS	Rectal artesunate suppository
RDT	Rapid diagnostic test
SBCC	Social and behavior change communication
SM&E	Surveillance, monitoring, and evaluation
SP	Sulfadoxine-pyrimethamine
VHW	Village health worker
WHO	World Health Organization
ZAPS	Zimbabwe Assisted Pull System

I. INTRODUCTION

This abbreviated fiscal year (FY) 2019 Malaria Operational Plan (MOP) presents an implementation plan for Zimbabwe, based on the strategies of the U.S. President's Malaria Initiative (PMI) and the National Malaria Control Program (NMCP) and building on investments made by PMI and other partners to improve and expand malaria-related services. It was developed in consultation with the NMCP and with the participation of national and international partners involved in malaria prevention and control in the country. The [FY 2018 MOP](#) contains a more detailed and comprehensive description of the malaria situation in Zimbabwe, country health system delivery structure, Ministry of Health and Child Care (MoHCC) organization, and PMI's progress through April/May of 2017. This abbreviated MOP describes critical changes/updates to overall NMCP and PMI strategic approaches, as well as newly proposed activities under each technical area to be supported with FY 2019 funds.

II. OVERVIEW OF PMI IN ZIMBABWE

Zimbabwe began implementation as a PMI focus country in FY 2011. The proposed FY 2019 PMI budget for Zimbabwe is \$14 million. As one of the major malaria donors in Zimbabwe, PMI coordinates closely with the NMCP and the Global Fund to Fight AIDS, Tuberculosis and Malaria (Global Fund) to ensure complementarity of support for implementation of the Zimbabwe National *Malaria Strategic Plan (MSP) 2016-2020*. Zimbabwe has made tremendous gains in decreasing the malaria burden compared to levels reported a decade ago and has successfully initiated an elimination approach and activities in lower transmission areas. However, in more recent years, malaria incidence has remained relatively stable. Continued PMI support is critical to maintain the existing gains and to drive further reduction in malaria morbidity and mortality.

PMI provides financial and technical support for a wide range of major malaria interventions in Zimbabwe, including: entomological monitoring, vector control (insecticide-treated mosquito nets [ITNs] and indoor residual spraying [IRS]); malaria in pregnancy (MIP); case management; pharmaceutical and supply chain management; surveillance, monitoring and evaluation (SM&E); operational research (OR); and social and behavioral change communication (SBCC). Portions of this support are directed to the central and national levels (e.g., technical assistance to central level MoHCC staff, laboratory capacity building, and procurement of malaria commodities for nationwide distribution), while other components are targeted directly to the provincial and district levels (e.g., malaria case management and IRS). Historically, PMI's provincial and district-level support has targeted higher burdened areas located in the northern and eastern parts of the country (See Figure 4). Under the strong leadership of NMCP, this support has contributed greatly to the overall reduction in malaria burden and, as a result, PMI will continue to primarily direct resources to these higher burdened areas. However, Zimbabwe experiences the full spectrum of malaria transmission, including areas with very limited transmission in the central plateau and south-western portions of the country. Beginning in FY 2018, PMI will initiate limited support for NMCP-driven elimination activities in these areas. If subsequent evaluation warrants, PMI may expand this support in the future. The geographic distribution of PMI-supported activities under this FY 2019 MOP is depicted in more detail in Figure 1.

III. STRATEGY UPDATES

- Political update: In November 2017, Zimbabwe underwent a militarily-assisted, largely peaceful transition of presidential power. The change in presidential power led to shifts in cabinet and ministry-level leadership. However, the MoHCC leadership remained consistent and in place. With the exception of a brief period in early November, this transition has had very limited impact on PMI's program implementation. A presidential election is planned to be held in July/August, 2018. At this time, it is unclear whether or how the election process or outcome will impact NMCP or PMI operations.
- Global Fund grant: In early 2018, Zimbabwe and the Global Fund finalized negotiations and signed a new grant agreement for the period 2018-2020. Under this agreement, the NMCP will receive \$53,685,777 over a three-year period for implementation of a wide range of malaria prevention and control activities. PMI Zimbabwe staff participated in the grant development process and will continue to work with NMCP and Global Fund counterparts to ensure alignment of PMI and other donor resources in support of the Zimbabwe *MSP 2016-2020*.
- Regional grants: The Elimination 8 is a partnership of eight Southern African countries established by the Southern Africa Development Community to accelerate the elimination of malaria in the region. The Elimination 8 Secretariat was awarded a Global Fund grant in 2015, which ends in September 2018. However, some infrastructural components and assets of the grant are expected to remain in place (e.g., border clinics near Beitbridge, Mutasa and Rushinga Districts in Zimbabwe, harmonized vector control indicators and surveillance tools) and continue to benefit member countries. The Elimination 8 grant is in the process of consideration for extension. NMCP/Zimbabwe has been invited to participate in an additional malaria regional grant. The World Health Organization (WHO), with Global Environmental Facility financial support, will embark on a multi-country project on integrated vector management. Zimbabwe is one of seven countries receiving direct funding from the project. The International Centre of Insect Physiology and Ecology, a center of excellence based in Nairobi, Kenya, has been contracted to support generation of evidence on the impact of key malaria interventions, indoor residual spraying and long lasting insecticidal nets, when used in combination with other innovative interventions in control and elimination settings.
- PMI implementing partner transition: PMI will continue to support strengthening of community level case management services in Manicaland Province. As of February 2018, these activities are now implemented under a new bilateral agreement managed by a new implementing partner. The PMI/Zimbabwe team is participating in the work planning process to ensure a successful transition of support in this highly burdened area.
- Entomological approach: PMI has consistently contributed to improving entomological capacity at all levels of the system in Zimbabwe. However, despite PMI's consistent support for Zimbabwe's routine entomological sentinel sites (training, supervision and equipment); these sites have struggled to reliably produce specimens and data. PMI, in concert with our entomological monitoring implementing partner and NMCP, and within the existing PMI projects and Global Fund malaria grant, will be assessing this sentinel surveillance approach and identifying alternative approaches (e.g., a transect approach) to ensure the production of entomological data for programmatic decision-making. This assessment and new approach will be in addition to continuing efforts to improve central and regional level entomological laboratory capacity already underway.

- IRS to ITN transition plan: In accordance with the Zimbabwe *MSP 2016-2020*, wards in 13 districts that have historically received IRS will receive ITNs beginning in 2018. This transition is based on the decrease in the annual parasite index in these districts to below the NMCP's programmatic threshold for IRS administration (annual parasite index less than or equal to five). If current trends hold, it is anticipated that additional districts will reach this threshold in the coming year. NMCP and partners will prepare communities in these areas to receive and use ITNs consistently. In addition, NMCP elimination protocols and systems are in place to monitor and track malaria cases closely in the areas currently transiting to ITNs.
- ITN continuous distribution and ITNs for the areas not covered by IRS: NMCP continues to expand routine ITN distribution throughout the country. This includes training of health facility and community workers to distribute and promote ITNs. NMCP's expansion plan also ensures procedures and systems are in place in designated ITN outlets in health facilities and communities. As of January 2018, 33 districts (out of 47 malarious districts) are designated for continuous distribution. The roll out is complete in PMI-supported districts, which represents about half of the 33 designated continuous distribution districts. The number of continuous distribution districts is expected to increase as more districts meet the criteria to transition from IRS to ITNs for vector control.
 - In 2017, NMCP recognized that there were areas in Zimbabwe that had structures located within IRS-designated areas that did not have sprayable walls (e.g., families with lower income levels that could not afford solid walls, farmers that build crude structures annually next to their farms or tobacco drying houses that had no walls or had walls that were not solid). There is a growing concern that these communities are not being adequately protected from malaria vectors. The NMCP has decided to change its policy to make exceptions to distribute ITNs in these areas, even if they are designated for IRS.
- PMI IRS support: Since 2014, PMI has initiated a full package of IRS support using organophosphates (OPs) in four districts in Manicaland Province. This comprehensive IRS support was initiated in response to an NMCP request, which was prompted by recently discovered resistance to pyrethroid insecticide among *Anopheles funestus*, the primary vector in these districts. The remaining IRS districts in Zimbabwe were sprayed by NMCP with either a pyrethroid or dichlorodiphenyltrichloroethane (DDT). Beginning with the October 2018 spray season, PMI Zimbabwe will transition the geographic focus of IRS comprehensive support from these four districts in Manicaland Province to two districts in Mashonaland East, with possible expansion to additional Mashonaland districts should resources allow. This change was initiated at the request of the NMCP and in accordance with Zimbabwe's insecticide resistance management plan. PMI will spray with OPs in the Mashonaland East districts and NMCP will shift to DDT in the Manicaland districts. PMI's IRS implementing partner will maintain a presence in Manicaland for the coming spray season to help ensure a smooth transition and high quality IRS implementation using the best practices established over the last four years of PMI support. Additionally, PMI has had preliminary discussions with the NMCP regarding the introduction of neonicotinoid insecticides in PMI districts, and these formulations may be considered for implementation in subsequent spray seasons.

- Antenatal care and intermittent preventive treatment in pregnancy policy updates: In keeping with the 2016 WHO updated recommendations on antenatal care (ANC), Zimbabwe is currently updating the national ANC guidelines to include the recommended eight ANC contacts for pregnant women. The national intermittent preventive treatment in pregnancy (IPTp) policy is also being updated to reflect the revised WHO recommendations. Zimbabwean community health workers will continue to actively promote ANC attendance and encourage women to receive IPTp at the clinic. In addition, NMCP is considering an IPTp policy recommending that pregnant women who are unable to make the additional visit during pregnancy weeks 13-16, should be given the first sulfadoxine-pyrimethamine (SP) dose by a village health worker (VHW). To date, some sensitization of provincial, district and facility level staff on VHW administration of the first dose has been conducted in areas where IPTp is administered. However, no training of VHWs has been undertaken yet. PMI will work with NMCP and partners to encourage a pilot prior to roll out, monitor the implementation of this novel policy and engage NMCP in discussion for an assessment after an initial period of implementation.
- Revised EUV approach: To improve the usefulness of end use verification (EUV) data for decision-making, PMI revised the EUV sampling methodology and questionnaire to reflect the current supply chain system and challenges in Zimbabwe. Changes include stratification of the health facility sample by malaria burden and inclusion of additional questions designed to assess 1) the extent of expiries and associated stock management and reporting practices at health facilities and 2) the supply chain management and reporting practices related to commodities provided to VHWs and 3) the addition of tracking primaquine stocks in elimination areas.
- SBCC emphasis on ITN use: The recent Malaria Indicator Survey (MIS) data shows low use of ITNs (e.g., 26 percent for the general population; See Table 1). Given the increasing reliance on ITNs for vector control in Zimbabwe, the NMCP and partners are committed to focusing the majority of SBCC resources on encouraging consistent ITN use. The recent ITN slogan, *My Net, My Life*, has been used over the past year but will be assessed, and an ITN branding exercise is planned to take place in mid-2018. The outcome of the branding exercise is expected to produce a strategy that will be deployed through 2020.
- SM&E Plan revision: In early 2018, PMI supported the review and revision of Zimbabwe's *Malaria Surveillance, Monitoring and Evaluation Plan 2008-2013* and the associated addendum through 2015. A stakeholder meeting with broad MoHCC and malaria partner representation was held and finalization of the document is underway. Revision of this critical document, which provides a tracking framework and implementation plan for SM&E activities in support of the overall *MSP 2016-2020*, will help PMI, NMCP and partners to better target resources for SM&E strengthening, ensure adequate implementation coverage and avoid duplication of effort.
- Epidemic Preparedness and Response Guideline revision: PMI supported the review and revision of the *2011 Zimbabwe Malaria Epidemic Preparedness and Response Guidelines*. A diverse group of stakeholders met in early 2018 and the revised guidelines are currently being finalized. PMI provided direct technical support to this review in an effort to assist the NMCP to better target resources for malaria seasonal preparedness and ensure appropriate and cost-effective responses to unexpected increases in transmission.

- PMI support for elimination activities: Beginning in FY 2018, PMI will provide limited financial and technical support for elimination activities. In elimination areas, Zimbabwe currently implements the activities laid out in the National *Malaria Elimination: Foci Investigation and Response Guidelines*, finalized in September 2017. These activities are currently conducted in 20 districts in four provinces. PMI's support for elimination activities will be targeted to Matabeleland North Province, one of the provinces already initiating elimination activities in selected districts. PMI's support will be channeled through a bilateral partner that already has an established presence and relationships with local and international partners working in Matabeleland North. PMI and this bilateral partner will provide some technical assistance at the provincial level but will primarily provide technical and logistical support at the district, health facility and community-levels based on the needs identified. PMI/Zimbabwe and MOP team has already noted a number of gaps, including: refresher trainings and supervision for facility staff and VHWs, technical support for case management and SM&E activities, logistical support for case finding and foci investigations (including entomological components) and support for SBCC messaging and materials for community members. As this is a new area of support in Zimbabwe, the PMI/Zimbabwe team will seek guidance from the PMI headquarters elimination team and study lessons learned from other country experiences.

IV. DATA UPDATES AND EVIDENCE OF PROGRESS

As mentioned above, Zimbabwe has made substantial progress in reducing malaria incidence compared to levels recorded a decade ago. However, in more recent years, the number of reported malaria cases has fluctuated between approximately 300,000 and 500,000 cases, with no sustained downward trend (See Table 1 and Figure 2). According to District Health Information System, Version 2 (DHIS2) data, approximately 470,000 malaria cases were reported in 2017, a 66 percent increase compared to 2016 and the second highest number of cases recorded in the past six years. This increase was temporally associated with a return of heavier rains after a period of relative drought in 2015 and 2016.

No additional national level, household-based surveys have been conducted since the 2016 MIS, which was described in detail in the FY 2018 MOP. Key findings from this and subsequent surveys during the period of PMI implementation are presented in Table 1 below.

Table 1: Evolution of Key Survey-Based Malaria Indicators in Zimbabwe from 2010 to 2016

Indicator	[2010, DHS ¹]	[2012, MIS ²]	[2015, DHS]	[2016, MIS ³]
% Households with at least one ITN	29%	46%	48%	58%
% Population with access to an ITN ⁴	22%	N/A	43%	42%
% Children under five who slept under an ITN the previous night	10%	58%	9%	33%
% Pregnant women who slept under an ITN the previous night ⁵	10%	N/A	6%	24%
% Population that slept under an ITN the previous night ⁴	9%	58%	10%	26%
% Children under five years old with fever in the last two weeks for whom advice or treatment was sought	N/A	100%	50%	65%
% Children under five with fever in the last two weeks who had a finger or heel stick	7%	N/A	13%	N/A
% Children receiving an ACT among children under five years old with fever in the last two weeks who received any antimalarial drugs	N/A	N/A	0.4%	N/A
% Women who received two or more doses of IPTp during their last pregnancy in the last two years	7%	35%	N/A	37%
% Women who received three or more doses of IPTp during their last pregnancy in the last two years	N/A	N/A	N/A	N/A
Under-five mortality rate per 1,000 live births	8%	N/A	7%	N/A
% children under five with parasitemia (by microscopy , if done)	N/A	0.4%	N/A	0.2%
% children under five with parasitemia (by RDT , if done)	N/A	1.0%	N/A	0.5%

¹ Demographic and Health Survey

² Malaria Indicator Survey

³ The sampling frames and data analysis methodologies for the 2012 and 2016 MIS differed substantially and comparisons should be made with caution.

⁴ Data presented from the 2010 DHS, 2015 DHS, and 2016 MIS for these two ITN indicators reflect the recalculated figures presented in the unpublished report *A Secondary Analysis of the Zimbabwe Malaria Indicator Survey 2016 with Respect to ITN Ownership and Use* completed with PMI support in coordination with the Zimbabwe NMCP. As a result, these figures may differ from those in the original publications. Figures for the % population that slept under an ITN the previous night indicator do not take into consideration access to an ITN. Data from the 2012 MIS was not available for inclusion in this secondary analysis.

⁵ For the 2012 MIS, data were collected on net use by women of child-bearing age but not among pregnant women specifically.

N/A - Data not available

Table 2: Evolution of Key Malaria Indicators Reported through Routine Surveillance Systems in Zimbabwe from 2012 to 2017

	2012	2013	2014	2015	2016	2017
Total # Cases (Confirmed and Presumed)¹	276,376	386,402	540,886	384,109	280,842	468,759
# Confirmed Cases²	276,376	386,402	540,886	384,109	280,842	468,759
# Presumed Cases³	0	0	0	0	0	0
Total # <5 Cases⁴	44666	43420	85087	46730	25972	57196
Total # Malaria Deaths⁵	207	283	631	473	339	534
Data Completeness⁶	100%	100%	100%	100%	100%	100%
Test Positivity Rate (TPR)⁷	38%	38%	38%	28%	23%	31%

¹Total # cases: Total number of reported malaria cases. All ages, outpatient, inpatient, confirmed and unconfirmed cases

²# confirmed cases: Total diagnostically confirmed cases. All ages, outpatient, inpatient

³# presumed cases: Total clinical/presumed/unconfirmed cases. All ages, outpatient, inpatient

⁴Total #<5 cases: Total number of <5 cases. Outpatient, inpatient, confirmed, and unconfirmed

⁵Total # Malaria Deaths Reported: All ages, outpatient, inpatient, confirmed, and unconfirmed

⁶Data completeness: Number of monthly reports received from health facilities/Number of health facility reports expected (i.e., number of facilities expected to report multiplied by the number of months considered)

⁷Test Positivity Rate (TPR): Number of confirmed cases (#2 above)/Number patients receiving a diagnostic test for malaria (RDT or microscopy)

PMI/Zimbabwe Team waiting for DHIS2 to be operational and will finalize.

Figures 2 and 3: Trends in Key Malaria Indicators Reported in Routine Surveillance Systems

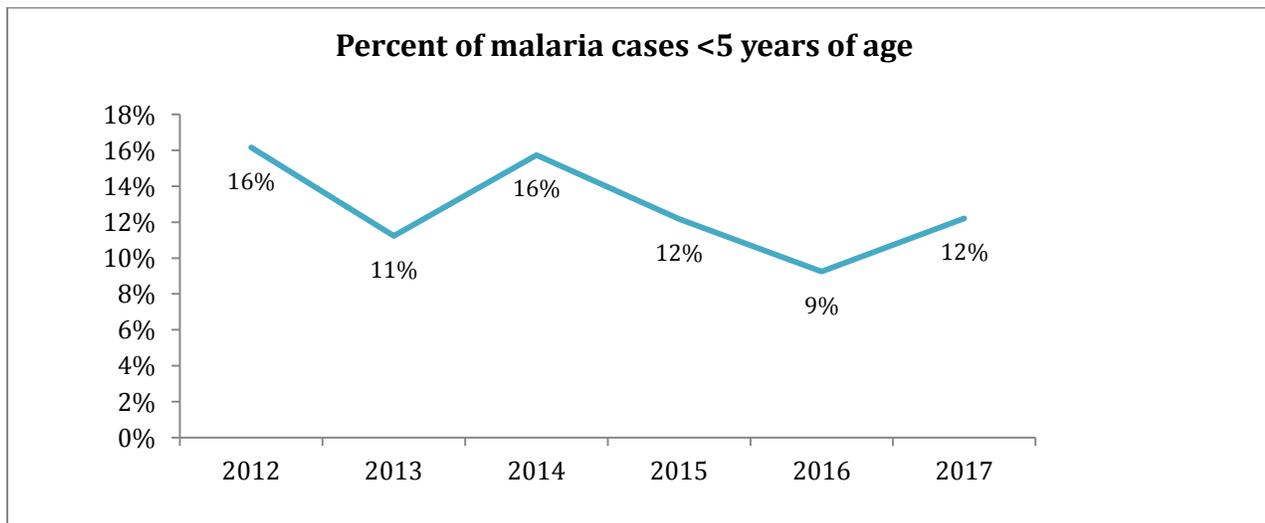
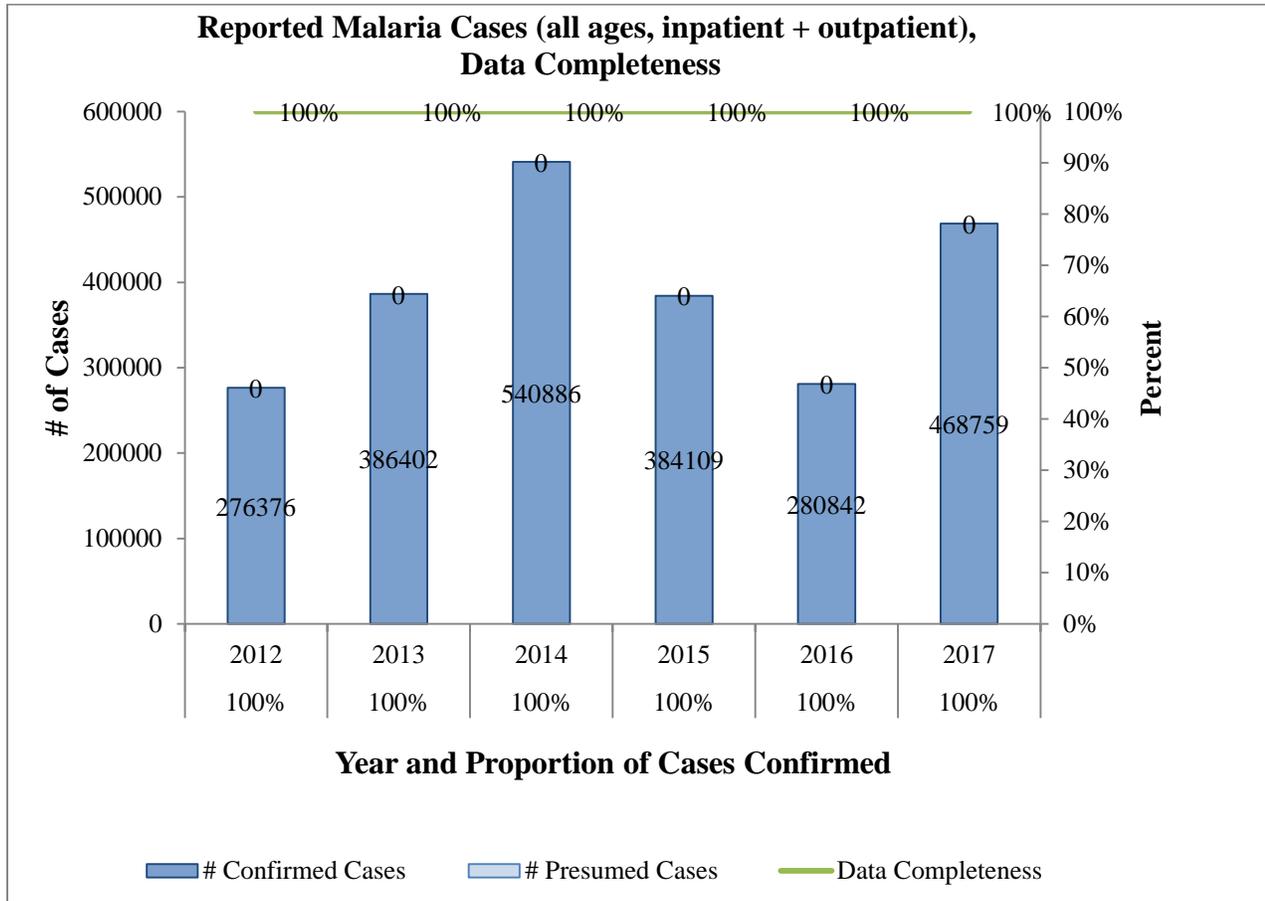
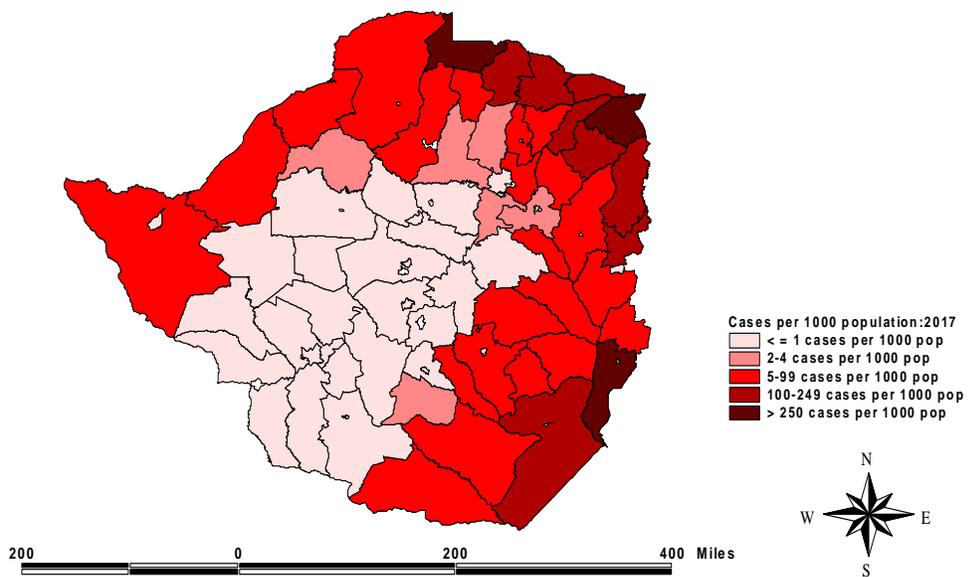
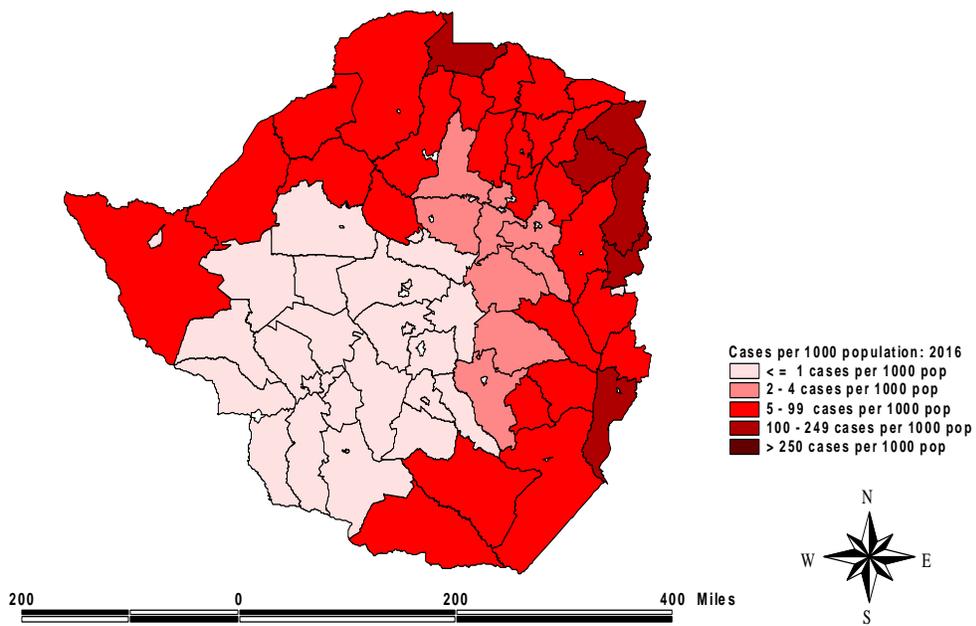


Figure 4 and 5: Malaria Incidence (per 1000 population*) by District, 2016 and 2017



*District population estimates based on most recent census, Zimbabwe 2012 Census.

V. NEW OR EXPANDED ACTIVITIES AND KEY CHANGES

1. Vector control

a. Entomologic monitoring and insecticide resistance management

PMI has been providing a comprehensive IRS package of support in four high-burdened districts of Manicaland Province since 2014. In order to appropriately monitor this IRS implementation, PMI expanded support for entomological surveillance in Manicaland to include three sites in three high-burdened districts (later expanded to four with the inclusion of Mutare City). PMI has also provided support for additional sentinel surveillance sites in the seven remaining rural provinces.

Beginning in 2018, the NMCP has requested that PMI focus support for IRS to other high-burdened districts outside Manicaland, with a full package of support spraying with OPs (See IRS Section c for more details). Although PMI will continue supporting entomological surveillance, including insecticide susceptibility monitoring, throughout Zimbabwe, emphasis on sites located in areas receiving PMI-supported IRS will remain a priority. Technical assistance will continue to strengthen entomological laboratory capacity to meet the need for entomological specimen analysis, data dissemination and use.

Low mosquito densities, and the subsequent inability to collect sufficient numbers for analysis, has limited the ability of the entomological surveillance system to provide reliable entomological data for decision-making. Consequently, NMCP and partners are exploring ways to improve mosquito collection methods and/or site selection. Considerations currently being explored include discontinuing prokopack aspirator collections, which consistently collect fewer mosquitoes than other methods, and focusing on improving collections for insecticide resistance testing during the coming rainy season. Given the funding for entomological surveillance outside of PMI IRS support areas, focusing on fewer sites per year in a transect form and implementing more rigorous and comprehensive monitoring at these sites is also being explored.

In FY 2018, PMI will provide support for strengthening entomological surveillance, both routine and in support of foci investigations, in provinces already implementing elimination activities. Stakeholder consultations are currently underway to define the scope of PMI support in these areas. There are substantial entomological surveillance gaps in the elimination areas and PMI support for entomological surveillance in the elimination areas will be expanded slightly in FY 2019 to address part of this gap.

b. Insecticide-treated nets

With FY 2017 and 2018 funds, PMI will continue to support NMCP and partners in ITN mass campaigns and routine distribution. PMI will work with NMCP and partners to implement a smaller-scale campaign in 2018 (for 12 low prevalence districts shifting from IRS to ITN vector control), a large nationwide campaign in 2019 (planned for 33 districts to receive replacement ITNs and ITNs for newcomers), and another smaller campaign in 2020 (districts TBD). PMI support includes planning for campaigns, logistics and supervision during the campaign and accompanying SBCC with specific messages for consistent ITN use throughout the year (See SBCC Section e). NMCP, with over five decades of trust in IRS, understands the importance of an IRS to ITN transition and takes a conservative approach in making any vector control transition decisions. The transition decision takes into account several years of malaria trends and is accompanied by management of expectations of the district/ward/community in accepting ITNs, including understanding the importance of adopting

consistent ITN use as a lifestyle. NMCP does not plan to add additional surveillance activities in these districts that have shifted to ITNs because they are not yet conducting elimination activities. Should any of these districts graduate to elimination activities, additional surveillance activities (e.g., case notification and follow up, screening of those residing in defined radius from the case as well as foci investigation) will be implemented. This is generally termed “enhanced surveillance”. The approach in the 12 transitioning districts will be to rely on the routine systems already in place. NMCP and partners will continue to strengthen the routine system and will monitor the impact of this vector control shift epidemiologically and entomologically, moving forward weekly and monthly respectively.

In addition to campaign distribution, PMI will support NMCP’s continued expansion of routine distribution throughout the country. As of January 2018, 33 districts are designated for continuous distribution. The roll out is complete in PMI-supported districts, which represent about half of the designated continuous distribution districts.

NMCP Global Fund sub-grantees are currently facing challenges in meeting the distribution targets, due primarily to suspended implementation by one of the sub-grantees. PMI is working with NMCP to fill the gap so the continuous distribution effort is completed in all eligible districts as soon as possible. The number of districts designated for continuous districts is expected to increase as more districts meet the criteria to shift from IRS to ITNs for vector control.

With PMI’s existing and planned contributions (including procurement of 800,000 ITNs with FY 2019 funds), Zimbabwe’s needs will be met, with a surplus of approximately 600,000 ITNs in 2018 and much smaller surpluses expected in 2019 (approximately 50,000 ITNs) and 2020 (approximately 180,000 ITNs). The bulk of the 600,000 surplus ITNs in 2018 will be distributed around August 2018. PMI hopes to be able to distribute all ITNs in country in the year in which they arrive, if possible. PMI trusts current estimates are accurate except for unknown potential population movements (e.g., refugee camps, etc.) and an increase in outdoor sleeping spaces, as PMI and NMCP encourage ITN use for this purpose as a more mainstream behavior.

c. Indoor residual spraying

In 2018, Zimbabwe will reduce the number of IRS targeted districts from 45 to 32. The 12 districts transitioning districts will receive ITNs.

The four districts that PMI has been supporting with a full implementation package in Manicaland Province with organophosphates (OPs) since 2014 will be rotated to DDT and implemented by NMCP with Global Fund grant funds, according to the proposed *Zimbabwe Insecticide Resistance Management Plan 2016-2020*. This plan calls for the regular rotation of insecticides, as frequently as every two years, as a priority method for mitigating the development of resistance to the various classes of insecticide available for use in Zimbabwe. As OPs have been used for four years in the PMI-supported Manicaland Provinces, the NMCP has requested that PMI focus on other high-burden districts in Mashonaland East Province with a full package of support spraying with OPs. As stated above, NMCP will be taking over the responsibilities for implementing spraying with DDT in the Manicaland Provinces, using Global Fund resources. PMI is amenable to the NMCP’s request for transition and is working closely with PMI headquarters and all other local malaria partners to ensure that the transition process is well-managed, adequately funded, and maintains the best practices put in place during the four years of PMI IRS support.

PMI has prepared a Manicaland transition plan to be implemented during the 2018 spraying season. Under this plan, PMI will provide dedicated technical assistance for key activities, including planning, training, environmental compliance, SBCC/community engagement, storage, and monitoring and evaluation. The transition plan will also include leaving behind critical equipment such as spray tanks and protective gear, as well as purchasing some pump replacement part kits. PMI intends to ensure that Manicaland can continue to implement a high quality IRS package, including maintaining the blanket coverage eventually reached under PMI support. PMI will keep some of its current partner staff in Manicaland to oversee this transition.

Simultaneously, PMI will implement a full package of IRS using OPs in two high-burdened districts in Mashonaland East Province. These districts, Mudzi and Mutoko, recorded the first and eighth highest incidence rates among Zimbabwe districts in 2017. Although located in a different province from PMI's traditional area of support, these districts are geographically contiguous with one of the PMI-supported Manicaland districts, Nyanga. These Mashonaland East districts are also located along the Mozambican border, which remains an area of strategic interest to the NMCP and PMI, given the higher levels of transmission reported. As part of the transition to these two districts, PMI intends to implement geo-mapping in one or both of these new districts in 2018 to better estimate the full universe of sprayable structures. PMI will purchase insecticide and equipment adequate for two to four districts in Mashonaland East Province, targeting approximately 200,000 structures.

PMI assumes that Manicaland Province, with NMCP support, will be prepared to operate independently during the 2019 spraying season; however, PMI is prepared to reassess the situation going forward based on IRS performance and other malaria indicators. If good IRS progress is attained by NMCP in Manicaland, PMI plans to support one or two additional Mashonaland districts in 2019. The districts currently under consideration include Mt Darwin and Rushinga Districts, which recorded the fourth and eleventh highest malaria incidence rates among Zimbabwe districts in 2017.

NMCP has considered the use of Clothianidin as an option. The PMI/Zimbabwe team has held detailed discussions regarding the potential use of Sumishield (and perhaps, Fludora-fusion) with NMCP leadership, including the possibility of implementing a mix of Sumishield and OPs in PMI supported areas as early as October 2019. Although the NMCP is open to future use of these insecticides, they are uncomfortable moving forward until further information from implementation in other countries (or in the case of Fludora-fusion, from a pilot already underway in Zimbabwe) is available. The PMI /Zimbabwe team is optimistic that this will be a viable option moving forward and will continue to engage with the NMCP on this issue.

2. Malaria in pregnancy

An analysis of the current stock status, anticipated future consumption, and planned PMI and Global fund resource commitments for 2019 and 2020, there is no resource gap expected for SP procurement and distribution. PMI will work with NMCP and Global fund to monitor the SP supply situation and adjust accordingly, should an unanticipated need arise.

PMI also will work with our implementing partners and NMCP to better target resources to improve IPTp implementation and reporting based on the findings of the recently completed assessment of the drivers and barriers of IPTp coverage, conducted in Manicaland Province in 2017 with PMI financial and technical support.

3. Case management

In FY 2019, PMI plans to increase support for the procurement of 1,000,000 single species RDTs, 730,000 treatments of artemether-lumefantrine, and 37,700 vials of parenteral artesunate to cover anticipated resource gaps, after taking into consideration proposed Global Fund and Government of Zimbabwe contributions.

Historically, NMCP has conducted separate forecasts using both morbidity and consumption data during the bi-annual national quantification exercises. In previous MOPs, PMI Zimbabwe has presented the morbidity-based forecast, which has underestimated the actual need. In the FY19 aMOP, the consumption-based model was used to estimate the need to ensure adequate resources are available. However, the PMI/Zimbabwe team is aware that this model may overestimate the need and we will monitor closely and adjust our procurements accordingly, in close coordination with the NMCP and Global Fund, the other primary donor for commodity procurement.

The 2018 RDT requirement takes into consideration the need to replenish the commodity pipeline to ensure minimum stock in-country, following a period of very low RDT availability resulting from unavoidable procurement issues.

With regard to future commodity gaps, the PMI/Zimbabwe team feels that these gaps will be manageable and will work with the NMCP and Global Fund to ensure adequate resources for necessary procurement. PMI/Zimbabwe specifically will look at cost savings under past procurements to assist in filling these gaps. Malaria stakeholders in Zimbabwe, including PMI, Global Fund and the GoZ are all aware of the potential future need and will monitor and respond to ensure adequate commodities are available. For future years (2020 and beyond), it is hoped that efforts to minimize the ACT:case ratio imbalance will be successful and the actual need may be less than currently predicted. Please see the text box below in the Pharmaceutical Management Section for an update on the ACT: case ratio and the recently conducted, PMI-funded assessment of this discrepancy.

Given the current misalignment between the WHO and Zimbabwe policies for rectal artesunate suppository administration, the slower than expected uptake of rectal artesunate commodities, and the availability of other resources for RAS procurement, PMI will not include funding for RAS procurement and distribution in FY 2019. However, the PMI/Zimbabwe team will continue to monitor the RAS policy and supply situation moving forward and, if necessary and appropriate, may shift resources to cover future gaps.

The most recent national supply chain quantification exercise demonstrates a lack of committed funding for parenteral artesunate from other sources and substantial gaps in 2019 and 2020. PMI plans to cover a substantial portion of this gap with product to arrive during the last quarter of 2018 calendar year and an additional procurement using FY 2019 funding. The PMI/Zimbabwe team will work with NMCP and Global Fund to closely monitor the consumption of injectable artesunate vials and respond accordingly, in case an additional supply is needed.

In FY 2018, PMI will initiate support for case management strengthening in provinces already implementing elimination activities, including the use of single dose primaquine, currently only procured by the Global Fund grant but monitored in the PMI-funded EUV. Stakeholder consultations are currently underway to define the nature, scope and geographic distribution of activities that PMI will support. Based on the substantial gaps already identified through these stakeholder consultations in

refresher training and supervision for facility staff, PMI's financial investment for these activities will be expanded slightly in FY 2019.

4. Cross-cutting and other health systems strengthening

a. Pharmaceutical management

PMI funding levels for supply chain strengthening activities will remain relatively consistent compared to FY 2018. However, PMI will work with NMCP to better target these resources to improve supply chain management and reporting practices, based on the findings of the recently completed assessment of the discrepancy between reported malaria cases and commodity consumption, conducted in 2017 with PMI financial and technical support. Particular emphasis will be placed on strengthening the stock management and reporting system for VHWs, including ensuring complete and timely submission of VHW treatment and commodity records to health facilities, and training health facility staff not to equate VHW distributed stock as a 'loss', and improving the handling of nearly expired commodities to limit the loss of medications.

Update on the Assessment of the Discrepancy between Reported Malaria Cases and Commodity Consumption

PMI Zimbabwe provided funding and technical support for an NMCP-led assessment designed to identify the issues and drivers behind the substantial discrepancy between ACTs issued and the number of reported malaria cases in Zimbabwe. Between 2014 and 2016, the ratio averaged approximately three ACTs issued per case reported (range 2.8 to 3.4). Data collection was completed in October 2017. However, to date, only preliminary findings are available and finalization of the document is pending further data sharing by the Government of Zimbabwe/NMCP.

As expected, the preliminary assessment indicated that the drivers of this discrepancy are multifactorial. Under-reporting of malaria cases within the Health Management Information System was identified as a contributing factor, with significant variability in reporting accuracy among the districts sampled. Supply chain management and documentation of commodity issues and consumption appears to contribute even more substantially to the reported discrepancy. Most notably, gaps and inconsistencies related to the distribution and tracking of commodities at the VWH level were identified, likely leading to overestimations of ACT consumption. Tracking of expired commodities was also sub-optimal. Although the study was not specifically designed to determine the likelihood and impact of commodity pilferage, health care workers did not perceive this to be significant factor and no evidence of widespread or significant pilferage was found during record review.

The PMI/Zimbabwe team considers completion of this report as a priority issue and continues to push for its finalization and implementation of recommendations to minimize this discrepancy. The MOHCC is looking for cost savings to reprogram under the current Global Fund grant in order to implement an electronic logistics management information system. As discussions continue in country, PMI will work to ensure the findings and suggestions from this assessment are incorporated into the standard operating procedures for that system.

In addition to making improvements based on the findings of the Assessment of the Discrepancy between Reported Malaria Cases and Commodity Consumption, PMI will continue to support biannual EUV exercises in FY 2019. The PMI team will monitor the implementation of the revised EUV approach outlined in the Strategy Update section and adjust as necessary to ensure appropriate data is available for programmatic decision making.

b. Social and behavior change communication

PMI and Global Fund co-fund SBCC activities and production and distribution of materials. Both donors support central level SBCC planning and country-wide messaging through the NMCP SBCC Subcommittee. For example, in FY2018, funds from both donors will co-fund a national malaria branding exercise led by the national level, with NMCP, international and local experts assisting with facilitation and capacity building exercise, and representatives from the provinces and some selected districts that work on malaria SBCC issues attending.

In addition to this central level support, both donors support different malarious districts. PMI partners primarily focus on districts in the three high burden provinces that document the vast majority of reported malaria cases (85 percent). PMI-supported provinces include: Manicaland, Mashonaland East, Mashonaland Central and the two high-burden districts in Matabeleland North (Binga and Hwange). These three provinces have a presence of two PMI partners and a total of 19 districts receive PMI-focused resources. These PMI-supported, high-burden provinces and districts have their own health education officers and create their own SBCC events and materials using NMCP central level guidance.

The current Zimbabwe malaria messages in medium and high burdened areas are:

- Sleep under a net every night all year round
- Every sleeping space needs a net - indoors and outdoors
- Conical and rectangular nets are equally protective; rectangular nets are flexible and can be transformed to conical
- Visit ANC early; protect yourself and your baby with SP every four weeks
- Seek treatment for fever within 24 hours
- Get tested for malaria with an RDT and receive and take all doses of appropriate treatment
- Accept and prepare for IRS to protect yourself and household

In elimination areas Zimbabwe malaria key messages include:

- Seek treatment for fever immediately at the nearest health facility
- Take all doses of appropriate treatment for malaria
- Assist the health facility workers and village health workers by agreeing to malaria testing if there's been a case identified in the area
- Encourage your neighbors with fever to be tested for malaria
- Encourage communities to participate in foci investigation

PMI expects additions and changes to the key malaria messages over the next year. For example, NMCP has decided that VHWs will play a bigger role in encouragement and administration of SP. VHWs will be able give the first dose of SP in the community. This will likely lead to the need for additional messaging, mainly in enforcing the VHW role in encouraging early ANC attendance and pregnant women's demand for SP. NMCP is also emphasizing using nets to cover outdoor sleeping spaces, which PMI expects will require a lot of SBCC for net users.

Additional updates to the Zimbabwe NMCP SBCC area are expected from the SBCC subcommittee development of an ITN specific branding plan prior to the 2018/2019 ITN distribution campaign. The plan will be used to guide the SBCC component during the ITN campaign and for routine distribution thereafter, through 2020. This exercise was planned based upon NMCP and partners' concern about survey data showing low ITN use among the general population (26 percent) and pregnant women (33 percent) and children under age five (24 percent) – all as reported in the Zimbabwe 2016 MIS.

Subsequently, PMI supported a secondary analysis of ITN MIS data validating this finding. NMCP used the Global Fund grant to further investigate, including an assessment of net use to understand why ITNs are not being used. The main reasons for not using nets in Zimbabwe were: 1) no mosquitoes around and 2) not malaria season. PMI will support a workshop to develop an ITN branding plan that resonates in Zimbabwe and helps support positive ITN behaviors to prevent malaria all year round. Addressing consistent, year-round ITN use is critical given that Zimbabwe's reliance on ITNs will only increase.

In FY 2018, PMI will initiate support for SBCC in provinces already implementing elimination activities. PMI and partners will use the NMCP SBCC Guidelines to identify target groups, positive behaviors, and indicators. Stakeholder consultations are currently underway to define the nature, scope, and geographic distribution of activities that PMI will support. PMI's financial investment for these activities will be expanded slightly in FY 2019.

Based upon PMI field visits and discussions with the NMCP SBCC Officer, the PMI/Zimbabwe team understands that there is a need for targeted messaging to community members to encourage their support and cooperation in active case finding and reporting of suspected cases. This is an important gap that PMI can fill with a small amount of funding. The NMCP SBCC Officer has suggested a combination of designing a series of messages to be delivered at community meetings via health facility staff/VHWs and a 'leave-behind' flyer or brochure that they can take home. There will be a needs assessment and more specific discussions with NMCP and provincial and district level officials to determine exactly what PMI will support.

c. Surveillance, monitoring, and evaluation

PMI funding levels for SM&E strengthening activities will remain relatively consistent compared to FY 2018. However, PMI will work with our implementing partner and NMCP to better target these resources based on the review and revision of the national SM&E plan and EPR guidelines (referenced in the Strategy Updates section), as well as the recently completed assessment of the discrepancy between reported malaria cases and commodity consumption.

With FY 2019 funding, PMI will provide partial support for a proposed MIS in partnership with Global Fund. The timing of implementation is yet to be determined but stakeholder discussions are underway regarding the implementation of this activity and other household surveys (i.e., DHS and MICS) in the coming years. Staggering of major nationwide surveys is strongly preferred and the PMI/Zimbabwe team has already discussed this with NMCP leadership. Originally, the MIS was planned for 2019 but was shifted due to monitoring issues related to the 2018-2020 Global Fund grant. At this time, the exact timing of both the MIS and the DHS are being determined and it is possible that the DHS may be shifted to a later date. The PMI/Zimbabwe team will stay engaged in the discussions and advise stakeholders appropriately, and adjust PMI programming if necessary.

Zimbabwe's malaria epidemiology represents a mixture of malaria transmission nationwide and this diversity can also be reflected within a province and often a district. This situation makes it challenging to capture data at the most useful level during the MIS. NMCP does use the district level API to characterize the status of malaria for nationwide mapping purposes. However, for vector control decision on ITN or IRS interventions are made at the lower, ward level. MIS data is collected during malaria season and focuses on performing the survey in malarious areas. This approach is likely to continue. Currently, discussions regarding the content and timing of the next MIS are actively underway. Both the NMCP and the PMI/Zimbabwe team feel that the 2016 MIS fell short of providing adequate and precise information for programmatic decision-making and NMCP leadership is open to

appropriate adjustments in the design and implementation of the next malaria survey. PMI will ensure that the data collection and analysis takes into consideration the geographic distribution of interventions implemented at a sub-national level in Zimbabwe (e.g. ITNs, IPTp) to provide more accurate estimates of coverage in targeted populations.

As mentioned above, the SM&E activities currently conducted in elimination areas are outlined in the National *Malaria Elimination: Foci Investigation and Response Guidelines*. In the 20 districts implementing elimination activities, Zimbabwe strives to implement an "enhanced surveillance system" that tracks individual malaria cases through the DHIS2 tracker, an electronic system that captures data on demographics, travel history, test results, case classification, and also includes GPS mapping of the index case's homestead and surrounding breeding sites. Outputs of the SM&E process include desk review reports, foci maps, and foci registers/databases, with the latter feeding into a national database. In FY 2018, PMI will initiate support for SM&E strengthening in elimination areas, including documenting and reporting of cases and foci investigations. Stakeholder consultations are currently underway to define the nature, scope, and geographic distribution of activities that PMI will support. Based on the substantial gaps already identified through these stakeholder consultations, PMI's financial investment for these activities will be expanded slightly in FY 2019.

Table 3. Surveillance, Monitoring, and Evaluation Data Sources

Data Source	Survey Activities	Year								
		2012	2013	2014	2015	2016	2017	2018	2019	2020
Household surveys	Demographic Health Survey (DHS)				X					(X)***
	Malaria Indicator Survey (MIS)	X				X			(X)***	
	Multiple Indicator Cluster Survey (MICS)*			X				(X)**		
	EPI survey*		X							
Health Facility surveys	Rapid Impact Assessment*		X							
Malaria Surveillance and Routine System Support	Support to HMIS	X	X	X	X	X	X	X	(X)	(X)
	Support to Integrated Disease Surveillance and Response (IDSR)	X	X	X	X	X	X			
Other Surveys	EUV	X	X	X	X	X	X	X	(X)	(X)
	ITN durability monitoring					X	X	X	(X)	
	Tracking Results Continuously*		X							
	In-vivo drug efficacy testing			X				X*		

*Not PMI-funded

**MICS Data Collection Scheduled for December 2018-February 2019

***Dates Being Negotiated with NMCP and Partners

d. Operational research

No new activities or significant changes are proposed.

e. Other health systems strengthening

No new activities or significant changes are proposed.

5. Staffing and administration

PMI Zimbabwe supports staffing and administration that follow PMI policy, as articulated in the FY 2018 MOP.