PMI | U.S. PRESIDENT'S MALARIA INITIATIVE

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This FY 2021 Malaria Operational Plan has been approved by the U.S. Global Malaria Coordinator and reflects collaborative discussions with national malaria control programs and other partners. Funding available to support outlined plans is pending final FY 2021 appropriation. Any updates will be reflected in revised postings.

U.S. PRESIDENT'S MALARIA INITIATIVE

ZIMBABWE

Malaria Operational Plan FY 2021

The U.S. President's Malaria Initiative (PMI)—led by the U.S. Agency for International Development (USAID) and implemented together with the U.S. Centers for Disease Control and Prevention (CDC)—delivers cost-effective, lifesaving malaria interventions alongside catalytic technical and operational assistance to support Zimbabwe to end malaria. PMI has been a proud partner of Zimbabwe since 2011, helping to decrease child death rates by 18 percent through investments totaling almost $131.5 million.

The proposed PMI fiscal year (FY) 2021 planning budget for Zimbabwe is $14 million. This Malaria Operational Plan (MOP) summary outlines planned PMI activities in Zimbabwe for FY 2021. See accompanying **FY 2021 Budget Tables** (Tables 1 and 2) for activities and budget amounts, available on pmi.gov. Developed in consultation with the National Malaria Control Program (NMCP) and key stakeholders, proposed activities reflect national and PMI strategies, draw on best-available data, and align with the country context and health system. Proposed PMI investments support and build on those made by the Government of Zimbabwe as well as other donors and partners. See **Annex A: Gap Analysis Tables** for information on commodities.

To accelerate the journey to self-reliance, PMI developed a programmatic inventory to assess the strengths and persistent challenges of the Zimbabwe program. See **MOP FY 2020 Zimbabwe, Annex B: Program Inventory**. The activities proposed in this MOP are tailored to draw on strengths and foster improvements.

Since the FY 2020 MOP was developed, the following new data, updated policy and/or strategic priorities relevant for the FY 2021 MOP have become available:

- Malaria situation update: National annual malaria incidence (cases per 1,000 population) increased from 19 in 2018 to 22 in 2019. The vast majority of cases continue to be reported from the three high-burden provinces of Manicaland, Mashonaland East, and Mashonaland Central. The number of deaths reported nationwide also rose, from 236 in 2018 to 266 in 2019.

- Development of Zimbabwe Malaria Control and Elimination Strategic Plan (ZMCESP) 2021-2025: In close consultation with PMI and other stakeholders, and taking into consideration the findings of the 2019 review of the current malaria strategic plan, the NMCP recently updated Zimbabwe's malaria strategic plan for the coming five-year

period. The stated goal of the near final draft of the ZMCESP 2021-2025 is to reduce malaria incidence to less than 5 cases per 1,000 population nationwide (by 2025), reduce malaria deaths by 90 percent (by 2025 compared to the 2019 figure) and accelerate the nation's progress toward malaria elimination. Specifically, the NMCP aspires to increase the number of districts implementing elimination activities from 28 to 36 and to achieve zero local transmission in a total of 20 districts. The key objectives and primary interventions remain similar to those outlined in the current strategic plan, with a provision for a gradual shift in the focus of vector control activities from indoor residual spraying (IRS) to the distribution and promotion of insecticide-treated nets (ITNs). To better target limited resources, the ZMCESP 2021-2025 places increased emphasis on improvements in surveillance, monitoring and evaluation systems, as well as enhancements in data analysis and use at all levels of the health system. Increased effort will also be made to build upon existing social and behavioral change activities to ensure adequate uptake of the targeted intervention.

- Submission of the Global Fund for AIDS, Tuberculosis, and Malaria (Global Fund) grant application: The Zimbabwe NMCP, in close consultation with PMI and other malaria stakeholders, developed and submitted (March 2020) a grant application to the Global Fund. This grant submission covers the period from January 2021 to December 2023 and includes an allocation request of approximately $51.7 million. Additional funding for critical malaria prevention and control activities, including IRS and ITN procurement and operational costs for the final year of implementation, are included in the prioritized above allocation request. The PMI Zimbabwe team carefully considered the contents of this grant application, the ZMCESP 2021-2025, and the updated commodity quantifications created during the grant writing process, when formulating the FY 2021 MOP gap analysis and budget tables.

- Entomological monitoring: Preliminary results were compiled and disseminated for PMI-funded entomological monitoring activities implemented from March 2019 through February 2020. Entomological monitoring was conducted at four sites in Mashonaland East, including one site each in Mudzi and Mutoko Districts, which currently receive direct PMI support for IRS operations. Two additional longitudinal sites in Manicaland Province were maintained as part of PMI Zimbabwe's commitment to support the transition of IRS operations in that province to the NMCP. Key findings included:

    - Low overall mosquito densities in all sentinel sites, with the majority of specimens collected from outdoor pit traps.

    - A shift in vector species distribution toward *Anopheles (An.) funestus* in all sites except in Mudzi District, which continued to demonstrate a predominance of *An. gambiae, s.s.*

- Low indoor resting densities of malaria vectors from pyrethrum spray catches.
- Higher numbers of malaria vectors collected outside (versus inside) using CDC light traps as a proxy for human landing catches.
- Effective residual wall times from cone bioassays for the 2018 IRS season of between four and five months for organophosphate insecticides and eight months for DDT. Residual wall times following the 2019 IRS season are still being monitored, with mortality still above the 80 percent threshold for organophosphates, DDT, and Fludora Fusion after four months.
- Continued susceptibility of vector species to the major classes of insecticides, with the exception of possible resistance to DDT emerging in one of the Manicaland Province sites (NMCP is currently using DDT in Manicaland).

The PMI Zimbabwe team will work with the NMCP and partners to ensure that these data are used to the fullest extent possible to improve programmatic decision-making and implementation of vector control activities. Of particular note, these results suggest a need to reassess the collection methodologies (and/or adjust interpretation of results when mosquito yields are low) to provide more robust data for decision-making. Additionally, continued monitoring of DDT susceptibility in Manicaland is indicated, as are discussions regarding the appropriate timing for a switch to an alternative insecticide in that province.

- Outcomes of PMI-funded IRS activities: As in 2018, PMI Zimbabwe provided direct support for IRS operations in Mudzi and Mutoko Districts in Mashonaland East Province in 2019. Overall IRS coverage for the two districts, calculated as the percentage of structures sprayed out of those found by spray operators, was nearly 94 percent. The total population protected by IRS was approximately 307,000 individuals. On a percentage basis, the overall 2019 spray coverage was similar to the result for 2018 of 91 percent. However, an additional 14,000 targeted structures (representing an approximately 11 percent increase) were identified and found in the two districts in 2019 based on the geo-mapping exercise conducted in the interim between the 2018 and 2019 spray seasons. IRS coverage data for the districts in Manicaland Province that were formerly supported by PMI is still not available. However, initial reports suggest that coverage levels were lower than desired in several high-burden districts, with corresponding increases in case burden in those areas in early 2020.

- Case management audit findings: Results of the 2019 Zimbabwe Malaria Case Management Audit were released after finalization of the PMI FY 2020 MOP. In August 2019, the audit team retrospectively reviewed case management records for over 2,400 malaria patients who visited 37 selected health facilities (including hospitals and outpatient facilities from the public and private sectors in both malaria control and elimination areas) from January 2017 to December 2018. Nearly 36 percent of the

reviewed records were from patients less than five years of age and 46 percent were from admitted patients with severe malaria. Key findings included:

- Nearly universal diagnostic testing of suspected malaria cases, with over 99 percent of suspected malaria outpatients and 98 percent of inpatients tested by RDT and/or microscopy.
- High adherence to guidelines for administration of malaria medicines, with over 95 percent of uncomplicated malaria patients receiving a first-line or second-line ACT and 98 percent of severe malaria patients receiving malaria treatment in accordance with the current guidelines.
- Approximately 10 percent of severe malaria patients died, of whom 60 percent were female.
- Almost 82 percent of pregnant women received three or more doses of sulfadoxine-pyrimethamine for IPTp (adjusted for cotrimoxazole use).
- Only 37 percent of uncomplicated and 30 percent of severe malaria cases sought treatment within 24 hours of symptom onset.
- Nearly 88 percent of uncomplicated malaria cases in elimination areas received a single dose of primaquine.
- Levels of training on the most recent case management guidelines (2015) varied substantially among cadres, with over 96 percent of Village Health Workers and 79 percent of Primary Care Nurses reporting having been trained, compared to only 33 percent of Registered General Nurses, 11 percent of clinical officers, and 5 percent of physicians.

Although generally favorable, these findings highlight the need for additional effort to expand case management training, supervision, and mentorship to ensure quality delivery of care by all practitioners, with a particular emphasis on the management of severe malaria. The PMI Zimbabwe team will also continue to expand and improve behavioral change communication activities that highlight the importance of early care seeking.

- DHS update: PMI Zimbabwe planned to provide partial support for a Demographic Health Survey (DHS) in 2020 using FY 2019 MOP funds, with adjustments in timing of implementation (peak malaria season), sampling frame, and data analysis to ensure usable data will be available for malaria programmatic monitoring and decision-making. However, funding from other donors and partners was delayed and the Government of Zimbabwe has postponed DHS implementation until 2021. PMI still intends to provide support for this activity in 2021 but, given the current pandemic and associated issues, it is not clear if in-country planning will commence in time for implementation of the DHS

during peak malaria season in 2021. PMI Zimbabwe continues to monitor the situation and will adjust our programming accordingly.

For more information about the malaria situation, malaria control progress, and intervention-specific data in Zimbabwe, please refer to the FY 2020 MOPs available on pmi.gov.

Annex A. Gap Analysis Tables

Insecticide-treated Mosquito Net (ITN) Gap Analysis			
Calendar Year	**2020**	**2021**	**2022**
Total country population	14,149,130	14,293,639	14,456,320
Total population at risk for malaria [1]	9,564,812	9,662,500	9,772,472
Population targeted for ITNs [2]	4,772,841	5,436,029	5,842,487
Continuous Distribution Needs			
Channel #1: ANC [3]	171,822	207,928	223,475
Channel #2: EPI [4]	171,822	207,928	223,475
Channel #3: Community [5]	477,100	568,385	471,427
Estimated total need for continuous channels	820,745	984,241	918,377
Mass Campaign Distribution Needs			
2019/2020/2021 mass distribution campaigns[6]	771,242	928,629	2,328,054
Estimated total need for campaigns	771,242	928,629	2,328,054
Total ITN Need: Routine and Campaign	**1,591,987**	**1,912,870**	**3,246,431**
Partner Contributions			
ITNs carried over from previous year (PMI)	100,000	209,255	25,014
ITNs from MOH	0	0	0
ITNs from Global Fund	771,242	928,629	1,769,258
ITNs from other donors	0	0	0
ITNs planned with PMI funding	930,000	800,000	930,000
Total ITNs Available	**1,801,242**	**1,937,884**	**2,724,272**
Total ITN Surplus (Gap)	**209,255**	**25,014**	**-522,159**

[1] Calculated as 67.6% of the total estimated Zimbabwe population, as per the most recent Zimbabwe malaria risk stratification.
[2] Estimated to be approximately 49.9%, 56.3%, and 59.8% of the population at risk of malaria for years 2020, 2021, and 2022, respectively. This is equivalent to the population of the wards targeted for ITN distribution, according to the ZMCESP 2021-2025. The plan states that the number of wards targeted for ITNs will increase yearly as IRS activities are scaled back, hence the increase in annual need over time.
[3] ANC distribution is targeted to first ANC attendee, estimated as 4.5% of the total population in ITN targeted wards, with subsequent adjustment for coverage targets laid out in the ZMCESP 2021-2025 of 80%, 85% and 85% for 2020, 2021, and 2022, respectively.
[4] EPI distribution is targeted to children receiving measles vaccine at nine months of age, estimated as 4.5% of the total population in ITN targeted wards, with subsequent adjustments for coverage targets laid out in the ZMCESP 2021-2025 of 80%, 85% and 85% for 2021, 2022, and 2023, respectively.
[5] Community distribution is intended to replace attrited or torn nets and to cover new sleeping spaces identified between mass campaigns. This is estimated to be 8% in first year after distribution and 20% of the ITNs in the second year after distribution.
[6] Beginning in 2021, more wards are expected to be targeted for ITN distribution as the country scales back IRS per the ZMCESP 2021-2025. In 2020,2021 and 2022, there will be mass campaigns to replace nets distributed during the 2017, 2018, and 2019.

Sulfadoxine-Pyrimethamine (SP) Gap Analysis			
Calendar Year	**2020**	**2021**	**2022**
Total population at risk [1]	9,564,812	9,662,500	9,772,473
SP Needs			
Total number of pregnant women [2]	430,417	434,813	439,761
Total SP Need (in treatments) [3]	**584,298**	**584,298**	**584,298**
Partner Contributions			
SP carried over from previous years	891,420	599,322	584,983
SP from Government	0	0	0
SP from Global Fund	0	269,959	584,298
SP from other donors	0	0	0
SP planned with PMI funding	292,200	300,000	0
Total SP Available	**1,183,620**	**1,169,281**	**1,169,281**
Total SP Surplus (Gap)	**599,322**	**584,983**	**584,983**
Gap Including Stock Required to End Year at Desired Stock Level [4]	**15,024**	**685**	**685**

[1] Calculated as 67.6% of the total estimated Zimbabwe population, as per the most recent Zimbabwe malaria risk stratification.
[2] Total number of pregnant women calculated as 4.5% of the total at-risk population.
[3] Total forecasted need is based on historical consumption, excluding requirements to fill up the pipeline to desired stock levels. Therefore, the estimated need does not directly correlate with the populations at risk and total numbers of pregnant women presented in this table, given the geographical targeting of IPTp in Zimbabwe (26 of 62 districts).
[4] Gap calculation assumes the desired maximum stock level of 12 months is met at the end of 2020, 2021, and 2022 calendar years.

Rapid Diagnostic Test (RDT) Gap Analysis			
Calendar Year	**2020**	**2021**	**2022**
RDT Needs			
Total country population	14,149,130	14,293,639	14,456,320
Population at risk for malaria [1]	9,564,812	9,662,500	9,772,473
PMI-targeted at-risk population	9,564,812	9,662,500	9,772,473
Total number of projected fever cases [2]	1,578,792	1,578,792	1,578,792
Percent of fever cases tested with an RDT [2]	98%	98%	98%
Total RDT Needs [3]	**2,339,673**	**2,339,673**	**2,339,673**
Partner Contributions (to PMI target population if not entire area at risk)*			
RDTs carried over from previous year	3,447,016	2,907,343	1,975,670
RDTs from Government	0	0	0
RDTs from Global Fund	800,000	0	1,530,550
RDTs from other donors	0	0	0
RDTs planned with PMI funding	1,000,000	1,408,000	1,200,000
Total RDTs Available	**5,247,016**	**4,315,343**	**4,706,220**
Total RDT Surplus (Gap)	**2,907,343**	**1,975,670**	**2,366,547**
Gap Including Stock Required to End Year at Desired Stock Level [4]	**567,670**	**-364,003**	**26,874**

[1] Calculated as 67.6% of the total estimated Zimbabwe population, as per the most recent Zimbabwe malaria risk stratification.

[2] Projected number of fever cases and percent of fever cases tested with an RDT are based on 2018 actual data reported in DHIS2, flatlined for 2020, 2021, and 2022.

[3] Total forecasted RDT need is based upon historical consumption for *Pf*-only RDTs, excluding requirements to fill up the pipeline to desired stock levels (see footnote 4).

[4] Gap calculation assumes the desired maximum stock level of 12 months is met at the end of 2020, 2021, and 2022 calendar years.

Artemisinin-based Combination Therapy (ACT) Gap Analysis			
Calendar Year	**2020**	**2021**	**2022**
ACT Needs			
Total country population	14,149,130	14,293,639	14,456,320
Population at risk for malaria	9,564,812	9,662,500	9,772,473
PMI-targeted at-risk population [1]	9,564,812	9,662,500	9,772,473
Total projected number of malaria cases [2]	290,820	267,230	244,866
Total ACT Needs [3]	**963,451**	**885,941**	**815,460**
Partner Contributions			
ACTs carried over from previous year	1,736,884	1,649,776	1,576,825
ACTs from Government	0	0	0
ACTs from Global Fund	451,791	90,990	432,472
ACTs from other donors	0	0	0
ACTs planned with PMI funding	424,551	722,000	0
Total ACTs Available	**2,613,227**	**2,462,766**	**2,009,298**
Total ACT Surplus (Gap)	**1,649,776**	**1,576,825**	**1,193,838**
Gap Including Stock Required to End Year at Desired Stock Level [4]	**686,325**	**690,885**	**378,378**

[1] Calculated as 67.6% of the total estimated Zimbabwe population, as per the most recent Zimbabwe malaria risk stratification.

[2] Projected cases based on prior actual reported case burden, with projected downward adjustments in 2021 and 2022 based on expected improvements in malaria prevention and control.

[3] Total need is based on average of morbidity and historical consumption forecasts and represents the combined need for 1st line (AL) and 2nd line (ASAQ) ACTs, excluding requirements to fill up the pipeline to desired stock levels. 97% of total cases are assumed to be uncomplicated. 100% of uncomplicated cases required 1st line (AL) treatment, of these, it is estimated that 3% will fail 1st line treatment and will require 2nd line (ASAQ) treatment.

[4] Gap calculation assumes the desired maximum stock level of 12 months is met at the end of 2020, 2021, and 2022 calendar years.

Injectable Artesunate Gap Analysis			
Calendar Year	**2020**	**2021**	**2022**
Injectable Artesunate Needs			
Projected number of severe cases [1]	8,725	8,017	7,346
Projected # of severe cases among children	3,490	3,207	2,938
Projected # of severe cases among adults	5,235	4,810	4,408
Total Injectable Artesunate Vials Needs [2]	**109,993**	**101,193**	**93,098**
Partner Contributions			
Injectable vials carried over from previous year	145,773	127,263	119,066
Injectable vials from Government	0	0	0
Injectable vials from Global Fund	53,783	92,996	68,146
Injectable vials from other donors	0	0	0
Injectable vials planned with PMI funding	37,700	0	0
Total Injectable Artesunate Vials Available	**237,256**	**220,259**	**187,212**
Total Injectable Artesunate Vials Surplus (Gap)	**127,263**	**119,066**	**94,114**
Gap Including Stock Required to End Year at Desired Stock Level [3]	**17,270**	**17,873**	**1,016**

[1] Assumes 3% of all malaria cases are severe cases.
[2] Total forecasted need is based on historical consumption, excluding requirements to fill up the pipeline to desired stock levels. Most (99.9%) complicated cases are expected to be treated with injectable artesunate except for pregnant women in the first trimester, pending revision of the current case management guidelines.
[3] Gap calculation assumes the desired maximum stock level of 12 months is met at the end of 2020, 2021, and 2022 calendar years.

Artesunate Suppository Gap Analysis			
Calendar Year	**2020**	**2021**	**2022**
Artesunate Suppository Needs			
Number of severe cases expected to require pre-referral dose at community level[1]	2,617	2,405	2,204
Total Artesunate Suppository Needs[2]	**16,858**	**16,858**	**16,858**
Partner Contributions			
Artesunate suppositories carried over from previous year	25,413	8,555	-8,303
Artesunate suppositories from Government	0	0	0
Artesunate suppositories from Global Fund	0	0	0
Artesunate suppositories from other donors	0	0	0
Artesunate suppositories planned with PMI funding[3]	0	0	0
Total Artesunate Suppositories Available	**25,413**	**8,555**	**-8,303**
Total Artesunate Suppositories Surplus (Gap)	**8,555**	**-8,303**	**-25,161**
Gap Including Stock Required to End Year at Desired Stock Level [4]	**-8,303**	**-25,161**	**-42,019**

[1] Assumes 3% of total cases will be severe malaria cases, and 30% of severe cases will be seen for community level pre-referral treatment
[2] Historical consumption-based forecast, excluding requirements to fill up the pipeline to maximum desired stock levels.
[3] PMI is currently not procuring RAS in Zimbabwe, pending revision of the Zimbabwe case management guidelines to align with current WHO recommendations for RAS administration to only children less than 6 years of age.
[4] Gap calculation assumes the desired maximum stock level of 12 months is met at the end of 2020 and 2021 calendar years.