

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

BURMA

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 Burma to end malaria. PMI has been a proud partner of Burma since 2011, helping to decrease malaria morbidity and mortality by 84 and 95 percent, respectively, from 2012 to 2019, through investments totaling \$73.4 million.

The proposed PMI fiscal year (FY) 2021 planning budget for Burma is \$9 million. This Malaria Operational Plan (MOP) summary outlines planned PMI activities in Burma 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 Burma 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 for the Burma program. See **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.

The National Strategic Plan for Malaria Elimination 2021-2025 (NSPME) was developed in December 2019 as part of the Global Fund funding request for the period of 2021-2023. The goal of the NSPME is to eliminate the indigenous transmission of *Plasmodium falciparum* (Pf) malaria by 2025 and put Burma on the path to eliminate all human malaria by 2030.

The NSPME has the following four objectives:

1. Achieve zero indigenous Pf malaria cases by 2025.
2. Reduce all malaria morbidity by 95 percent relative to the 2018 baseline Annual Parasite Incidence (API) of 1.46/1,000 population and reduce mortality associated with indigenous malaria to zero by 2025.
3. Prevent the re-establishment of indigenous transmission of all malaria in townships where transmission has been interrupted.
4. Prevent the emergence/introduction and spread of artemisinin-based combination therapy (ACT) resistant Pf malaria in Burma.

Additionally, the NSPME supports the following key interventions and supporting elements:

1. Early and effective malaria case management.
2. Universal coverage of high-risk populations with appropriate malaria prevention measures.
3. Case-based surveillance for elimination and prevention of re-establishment.
4. Expanding research for innovation to accelerate malaria elimination and improve delivery of services.
5. Strengthening the enabling environment.

Burma strives for equitable and universal access to effective preventative, diagnostic, and therapeutic services to all at-risk populations, including those living in hard-to-reach areas (forest goers, mobile populations, and migrants). Progress towards elimination will be accelerated through the targeted and effective deployment of proven interventions to at-risk populations and utilization of promising new interventions tailored to the needs of specific high-risk communities. The development of a sustainable elimination effort will be strengthened by building country ownership and leadership and mobilizing a multisectoral partnership action with the participation of multiple stakeholders. A case-based surveillance system will be put in place nationally to support the identification of transmission foci, providing a system to verify elimination at the sub-national level and prevent re-establishment. In addition, information systems that facilitate logistics management and routine monitoring and evaluation at the operational unit-level will be implemented. Improved epidemiology-led entomological surveillance and investigation will be conducted to support evidence-based vector control operations and research will be expanded to assess innovative strategies to accelerate malaria elimination and improve delivery of services.

The strategy aims to ensure appropriate interventions, tailored to the local epidemiology, in all endemic areas through a stratification system and phasing effort. The specific activities that will be implemented in any given area will vary according to endemicity and whether the aim of the program in a particular setting is burden reduction, elimination, or prevention of re-establishment. Townships will be stratified based on API. Burden reduction ($API \geq 1$) will involve aggressive scaling-up of effective preventive and curative interventions to achieve universal coverage. Malaria case-based surveillance will be the core intervention for elimination ($API < 1$) and prevention of re-establishment areas where effort will be on investigating and managing every case to avoid onward transmission.

Burma has an established community-based case management service for malaria delivered by Integrated Community Malaria Volunteers (ICMVs). These ICMVs were recently transitioned from village health volunteers (VHVs), work site and mobile volunteers and are now taking responsibility for five additional diseases, including tuberculosis, sexually transmitted infections/AIDS, dengue hemorrhagic fever, filariasis, and leprosy, in addition to malaria. ICMVs substantially complement and extend the reach of public health services, particularly in rural and remote areas, where health infrastructure tends to be weak or absent and malaria transmission tends to be highest. The Ministry of Health and Sports is in the process of developing a new CHW policy framework to transition ICMVs further into fully qualified CHWs. PMI will continue to monitor these policy changes to ensure that malaria services continue uninterrupted and support for the broader, integrated cadre of volunteers is provided.

PMI supports the NMCP's strategy, contributing support both at national and peripheral levels. At national level, PMI provides support for capacity building, particularly in the field of entomology and epidemiology, monitoring therapeutic efficacy of antimalarial drugs, strengthening malaria surveillance, antimalarial drug quality assurance systems, supply chain management for health commodities, and quality assurance for malaria diagnosis. At peripheral level, PMI supports comprehensive, community-based malaria services for at-risk populations with vector control and case management interventions, involving public and private sectors including civil society and ethnic health organizations.

With FY 2021 funding, PMI will support implementation of community-based malaria services through ICMVs in targeted states/regions. PMI selects and implements activities in targeted states/regions in close coordination with the NMCP and the Global Fund, other partners and donors operating in these areas, to ensure comprehensive coverage of administrative areas. This approach allows PMI to focus malaria interventions in priority areas and to provide comprehensive assistance at all levels of the health system, as well as expand coverage to more remote communities and to reach at-risk mobile and migrant populations.

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

Annex A. Gap Analysis Tables

Insecticide-treated Net (ITN) Gap Analysis			
Calendar Year	2020	2021	2022
Total country population ¹	54,817,919	55,294,979	55,770,232
Total targeted population ²	7,721,720	4,344,229	2,433,610
Continuous Distribution Needs			
Channel #1: ANC ³	193,043	108,606	109,518
Channel #2: Mobile migrant populations ⁴	887,998	487,065	491,156
<i>Estimated total need for continuous channels</i>	1,081,041	595,671	600,674
Mass Campaign Distribution Needs			
Mass distribution campaign ⁵	0	0	1,352,100
<i>Estimated total need for campaigns</i>	0	0	1,352,100
Total ITN Need: Routine and Campaign	1,081,041	595,671	1,952,774
Partner Contributions			
ITNs carried over from previous year	387,492	476,931	476,960
ITNs from Global Fund continuous distribution ⁶	320,480	445,700	450,703
ITNs from Global Fund for mass distribution	0	0	1,353,000
ITNs planned with PMI funding ⁷	850,000	150,000	150,000
Total ITNs Available	1,557,972	1,072,631	2,430,663
Total ITN Surplus (Gap)	476,931	476,960	477,889

¹ Source: Ministry of Labour, Immigration and Population, Township Projection 2014-2031. Population growth is estimated at 0.87% per year.

² Targeted population defined as people living in malaria epidemiological strata 3 only — 3a (API>5), 3b (API=1-5), 3c (API<1) in 2018, defined by subhealth center catchment. The total risk population (3a-c and 2) has been declining in line with the decline in cases from ~44 million in 2017 to ~23 million in 2018.

³ ITNs for ad hoc distribution by antenatal care (ANC) and reproductive, maternal, newborn, and child health (RMNCH) clinics; 2.5% of the targeted population and 1 person per net.

⁴ Mobile and migrant population is estimated at approximately 11.5% of the targeted population.

⁵ ITNs mass distribution is focused only on people living in malaria epidemiological strata 3 at 1.8 persons per net.

⁶ Commodity contributions for 2021 and 2022 are estimates per the new Global Fund funding request. The current grant ends in December 2020.

⁷ 2020 ITN procurements/ distribution supported with FY18 pipeline and FY19 funds; expected arrival in September 2020.

Artemisinin-based Combination Therapy (ACT) Gap Analysis			
Calendar Year	2020	2021	2022
ACT Needs			
Total country population ¹	54,817,919	55,294,979	55,770,232
Population at risk for malaria ²	23,571,705	23,776,841	23,981,200
PMI-targeted at-risk population ³	1,570,336	1,583,998	1,597,779
Total projected number of malaria cases ⁴	40,196	27,451	18,137
Pf cases	18,000	11,000	6,000
Mixed cases (Pf + Pv) ⁵	804	549	363
Total ACT Needs ⁶	89,176	81,921	76,735
Partner Contributions			
ACTs carried over from previous year	97,068	85,857	88,663
ACTs from Global Fund ⁷	44,459	57,727	52,856
ACTs from other donors	6,506	0	0
ACTs planned with PMI funding	27,000	27,000	27,000
Total ACTs Available	175,033	170,584	168,519
Total ACT Surplus (Gap)	85,857	88,663	91,784

¹ Source: Ministry of Labour, Immigration and Population, Township Projection 2014-2021. Population growth is estimated at 0.87% per year.

² Population at risk for malaria includes people living in malaria epidemiological strata 2 & 3 in 2019.

³ Estimated population in PMI project areas in 4 states/regions.

⁴ For estimating the numbers of ACTs an epidemiological model developed by NMCP and partners that ties the expected rate of decline in cases of each malaria species to reaching zero Pf cases in 2025.

⁵ Pf + Pv mixed cases requiring ACT for schizonticidal treatment.

⁶ ACT need is calculated based on the number of Pf cases plus mixed cases, plus a buffer stock of 2 ACT treatments per health facility and community health volunteer (approximately 35,186 units).

⁷ The Global Fund commodity contributions for 2021 and 2022 are estimates based on the funding request. The current grant ends in December 2020.

Chloroquine (CQ) Gap Analysis			
Calendar Year	2020	2021	2022
CQ Needs			
Total country population ¹	54,817,919	55,294,979	55,770,232
Population at risk for malaria ²	23,571,705	23,776,841	23,981,200
PMI-targeted at-risk population ³	1,570,336	1,583,998	1,597,779
Total projected number of malaria cases	40,196	27,451	18,137
Total projected number of vivax malaria cases to be treated by CQ	23,000	17,000	12,500
Total CQ tablet Needs ⁴	581,860	521,860	476,860
Partner Contributions			
CQ tablets carried over from previous year	947,694	685,616	643,661
CQ tablets from Global Fund ⁵	319,782	459,905	423,247
CQ tablets planned with PMI funding	0	20,000	20,000
Total CQs Available	1,267,476	1,165,521	1,086,908
Total CQ Surplus (Gap)	685,616	643,661	610,048

¹ Source: Ministry of Labour, Immigration and Population, Township Projection 2014-2021. Population growth is estimated at 0.87% per year.

² Population at risk for malaria includes people living in malaria epidemiological strata 2 & 3 in 2019. Population growth is estimated at 0.87% per year.

³ Estimated population in PMI project areas in 4 states/regions.

⁴ CQ needs are based on number of Pv cases (source: Global Fund RAI3e funding request) and ensuring 10 CQ tablets (1 adult treatment dose) at each health facility and ICMV (total unit need is 35,186).

⁵ The Global Fund commodity contributions for 2021 and 2022 are estimates based on the funding request. The current grant ends in December 2020.

Rapid Diagnostic Test (RDT) Gap Analysis			
Calendar Year	2020	2021	2022
RDT Needs			
Total country population ¹	54,817,919	55,294,979	55,770,232
Population at risk for malaria ²	23,571,705	23,776,841	23,981,200
PMI-targeted at-risk population ³	1,570,336	1,583,998	1,597,779
ABER targeted for Burma ⁴	10%	10%	10%
RDT need for country ⁵	2,357,171	2,377,684	2,398,120
RDT for ACD, foci investigation ⁶	687,117	661,228	643,670
Total RDT Needs	3,044,288	3,038,912	3,041,790
Partner Contributions			
RDTs carried over from previous year	1,197,863	1,366,969	1,366,969
RDTs from Global Fund ⁷	2,644,288	2,638,912	2,641,790
RDTs from other donors	169,106	0	0
RDTs planned with PMI funding	400,000	400,000	400,000
Total RDTs Available	4,411,257	4,405,881	4,408,759
Total RDT Surplus (Gap)	1,366,969	1,366,969	1,366,969

¹ Source: Ministry of Labour, Immigration and Population, Township Projection 2014-2031. Population growth is estimated at 0.0087.

² Population at risk for malaria includes people living in malaria epidemiological strata 2 & 3a-c in 2019.

³ Estimated population in PMI project areas in 4 states/regions.

⁴ To maintain a surveillance focus on testing the maximum number of persons to assess elimination efforts, a target annual blood examination rate (ABER) of 10% is set by Burma NMCP, based on the presumption that 10% of the target population in a year will have fever at one point in time.

⁵ Source: Global Fund RAI3e Epi worksheet. Tests sufficient number to reach 10% ABER for the population in strata 2 & 3 (based on 2019).

⁶ RDTs for mobile teams, case and foci investigation, pregnant women (2.5% of strata 2 & 3).

⁷ The Global Fund commodity contributions for 2021 and 2022 are estimates based on the funding request. The current grant ends in December 2020.

Primaquine (PQ) Gap Analysis			
Calendar Year	2020	2021	2022
PQ Needs			
Total country population ¹	54,817,919	55,294,979	55,770,232
Population at risk for malaria ²	23,571,705	23,776,841	23,981,200
PMI-targeted at-risk population ³	1,570,336	1,583,998	1,597,779
Total projected number of malaria cases	40,196	27,451	18,137
Pf cases	18,000	11,000	6,000
Pv cases	23,000	17,000	12,500
Mixed cases (Pf + Pv) ⁴	804	549	363
Total projected number of malaria cases to be treated by PQ 14 days	23,804	17,549	12,863
Total projected number of malaria cases to be treated by PQ single dose	17,196	10,451	5,637
Total PQ tablet (7.5mg) Needs ⁵	2,229,600	1,966,012	1,750,402
Partner Contributions			
PQ tablets carried over from previous year	1,318,308	1,003,513	464,975
PQ tablets from Global Fund ⁶	1,164,805	1,371,474	1,276,592
PQ tablets planned with PMI funding	750,000	56,000	56,000
Total PQ tablets Available	3,233,113	2,430,987	1,797,567
Total PQ tablets Surplus (Gap)	1,003,513	464,975	47,165

¹ Source: Ministry of Labour, Immigration and Population, Township Projection 2014-2031. Population growth is estimated at 0.87% per year.

² Population at risk for malaria includes people living in malaria epidemiological strata 2 & 3 in 2019.

³ Estimated population in PMI project areas in 4 states/regions.

⁴ Pf + Pv mixed cases requiring 14 days of PQ.

⁵ Assumes 7.5 mg tablets; Vivax dosing is 15mg/day x 14 days and falciparum is 45mg once. One adult Tx of PQ for vivax= 28 tablets and Pf=6 tablets, and dose adjusted by age group, plus one additional adult course (6 tabs Pf, 28 tabs Pv) for each health facility and ICMV.

⁶ The Global Fund commodity contributions for 2021 and 2022 are estimates based on the funding request. The current grant ends in December 2020.

Injectable Artesunate Gap Analysis			
Calendar Year	2020	2021	2022
Injectable Artesunate Needs			
Projected number of severe cases ¹	124	76	41
Projected # of severe cases among children	24	15	8
Projected # of severe cases among adults	100	61	33
Total Injectable Artesunate Vials Needs ²	21,144	20,622	20,244
Partner Contributions			
Injectable vials carried over from previous year	29,318	26,839	30,737
Injectable vials from Global Fund ³	18,665	24,520	25,255
Total Injectable Artesunate Vials Available	47,983	51,359	55,992
Total Injectable Artesunate Vials Surplus (Gap)	26,839	30,737	35,748

¹ 0.69% of predicted Pf cases, based on 2018 statistics.

² Calculations assumes severe malaria cases in 80% of adults x 12 vials per treatment and in 20% of children x 6 vials per treatment; and an additional 60 vials (5 adult treatments) available at each township (330 total townships).

³ The Global Fund commodity contributions for 2021 and 2022 are estimates based on the funding request. The current grant ends in December 2020.

Annex B. Program Inventory

Figure B1. Category: Vector Control

Activity	Metrics/Criteria	Relative Continuum					Estimate Level
		1	2	3	4	5	
Vector Control	Coverage with vector control intervention(s) with appropriate insecticide(s) given country's insecticide resistance profile	No coverage of malaria endemic areas with a vector control intervention	1-25% of the geographic area of malaria endemic regions covered	26-50% of the geographic area of malaria endemic regions covered	51-75% of the geographic area of malaria endemic regions covered	>75% of the geographic area of malaria endemic regions covered	5
Entomological Monitoring	Insecticide resistance monitoring	No monitoring	Limited monitoring conducted ad hoc	Annual monitoring conducted in limited number of sites, not covering all administrative units; occasional monitoring of molecular mechanisms	Annual monitoring conducted in a greater number of sites with some collaboration with other partners; routine monitoring of some resistance mechanisms	Regular high-quality monitoring in multiple sites per administrative unit considering molecular mechanisms and bioassay data and collaborating with other partners and NMCP	3
Entomological Monitoring	Insectary	No functioning insectaries	Insectary present, but frequent ruptures in rearing and contamination of strains; frequent challenges in meeting needs	Insectary present with full-time staff; some capacity for strain verification; some challenges to get enough mosquitoes and occasional contamination	One or more insectary present; regular verification; rare challenges to get enough mosquitoes; some capacity for strain verification	Highly functioning insectaries with verification of strains, capacity for rearing wild strains, and quality controls in place	4

Entomological Monitoring	Data-based vector control decision-making	No consideration of entomological data	Limited data review; reliance on outdated data; uncoordinated data analysis with limited collaboration with partners	Irregular and incomplete data review from multiple partners, sometimes in collaboration with research and funding partners	Collaborative but irregular review of entomological data, sometimes providing timely evidence for decisions	Collaborative regular review of entomological data from multiple sources for vector control decisions	3
Entomological Monitoring	Vector bionomics monitoring or research	No longitudinal monitoring or research done in country	Limited longitudinal monitoring and research done in country	Regular vector bionomics monitoring and vector control research done in country, but weaker role in decision-making	Regular vector bionomics and vector control research done in country but insufficient to respond to all major needs of the national program	Regular monitoring driven by program priorities alongside research done in country to provide timely data on the best malaria vector control	5
Entomological Monitoring	Institutionalization of funding	No resources	Supported by external partners; no host government funding	Some host country government funding	>50% funded by host country government	Fully funded by host country government	3
ITNs	Consistent distribution channels, in accordance with national strategy	Infrequent campaigns; no continuous distribution	Regular campaigns; no continuous distribution	Regular campaigns; inconsistent continuous distribution	Regular campaigns; at least one well-managed continuous distribution channel	Regular, well-executed campaigns; well-managed continuous distribution channels	4
ITNs	Regular supervision of routine ITN distribution (e.g. HFs, schools, communities)	No regular supervision	0-25% of sites regularly supervised	26-50% of sites regularly supervised	51-75% of sites regularly supervised	>75% of sites regularly supervised	4

ITNs	ITN distribution reporting capabilities	ITNs distributed not reported into LMIS (or other system)	Some ITNs distributed reported routinely	Some ITNs distributed reported routinely but cannot be disaggregated by channel	ITNs distributed reported routinely and disaggregated by channel	All ITNs distributed captured routinely, disaggregated, and reported electronically	4
IRS	Host country government's IRS implementation capacity	N/A, no host country government implemented spray campaign	Very limited capacity to implement minor aspects of spray campaign	Capacity to implement some aspects of spray campaign	Capacity to implement most aspects of spray campaign	Implements spray campaign independently	5
IRS	Institutionalization of funding	N/A, no IRS conducted in country	No host country government funding, only supported by external sources	Limited host country government funding in addition to external sources	>50% funded by host country government in addition to external sources	Fully funded by host country government, no external sources	3
IRS	Coverage of government-implemented spray campaign	N/A, no government-implemented spray campaign	Spray coverage not reported	≥85% coverage in some government-sprayed areas	≥85% coverage in most government-sprayed areas	≥85% coverage in all government-sprayed areas	5
IRS	Host country government and local institution IRS monitoring capacity: IRS quality/residual efficacy	N/A, no IRS conducted in country	No capacity (i.e. no staff hired or trained)	Limited ability to monitor IRS (i.e. staff hired, but need training and rely heavily on external assistance)	Occasional ability to monitor IRS (i.e. staff hired and trained, limited reliance on external assistance)	Independent monitoring for IRS quality/residual efficacy (i.e. fully trained staff without need for external assistance)	5
IRS	Host country government IRS monitoring capacity: environmental compliance	N/A, no IRS conducted in country	No capacity	Limited ability to monitor EC (i.e. staff hired, but need training and rely heavily on external assistance)	Occasional ability to monitor EC (i.e. staff hired and trained, limited reliance on external assistance)	Independent EC monitoring	3

Figure B2. Category: Case Management

Activity	Metrics/Criteria	Relative Continuum					Estimate Level
		1	2	3	4	5	
Community-Based	Coverage of CHWs trained in and providing CM (geographic or numerical target)	No CHWs conducting CM	0-25% of national target met	26-50% of national target met	51-75% of national target met	76-100% of national target met	5
Community-Based	Regular supervision of CHWs in CM as per national QA/QC guidelines	No CHWs regularly supervised in CM	0-25% of CHWs regularly supervised in CM	26-50% of CHWs regularly supervised in CM	51-75% of CHWs regularly supervised in CM	76-100% of CHWs regularly supervised in CM	4
Community-Based	CHW reporting	CHW-managed cases not reported into HMIS	Some CHW-managed cases routinely reported into HMIS	Cases routinely reported into HMIS but not disaggregated from facility-reported cases	Cases routinely reported into HMIS and can be disaggregated from facility-reported cases	All CHW case data routinely captured and reported electronically	5
Community-Based	Institutionalization of funding (salaries and/or other support)	No resources	Only supported by external partners, no host country government funding	Some host country government funding	>50% funded by host country government	Fully funded by host country government	2
Facility-Based	Access to care (within 5 km of a health facility or as per national definition)	0-20% of population has access	21-40% of population has access	41-60% of population has access	61-80% of population has access	>80% of population has access	3
Facility-Based	Regular supervision of public facilities in CM	No regular supervision in CM	1-25% of facilities regularly supervised in CM	26-50% of facilities regularly supervised in CM	51-75% of facilities regularly supervised in CM	>75% of facilities regularly supervised in CM	4

Facility-Based	Drug resistance monitoring	No TES performed in last 3 years	TES performed in last 3 years but results not available	Recent TES results available (within last 3 years) but no training in molecular testing	Recent TES results available (within last 3 years) and in-country staff trained in molecular testing	Recent TES results available (within last 3 years) and in-country capability for molecular testing	5
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Figure B3. Category: Drug-Based Prevention

Activity	Metrics/Criteria	Relative Continuum					Estimate Level
		1	2	3	4	5	
MIP	National MIP policy	No policy	Policy exists but is not comprehensive (does not cover all aspects of MIP: ITN, CM, and if applicable IPTp)	Comprehensive policy exists, but not all WHO recommendations included	Policy meets current WHO recommended MIP prevention	Comprehensive, WHO-aligned policy is actively implemented	5
MIP	Country policy adoption/adaptation of 2016 WHO ANC guidelines	No policy	Country has started discussions for adopting guidelines but still implements FANC	Country has policy with 2016 guidelines but no provision for early delivery of IPTp	Country policy is aligned with 2016 guidelines and has provision for delivery of IPTp at 13-16 weeks	Country policy is aligned with 2016 guidelines, has a provision for delivery of IPTp at 13-16 weeks, and is implemented at facility level	3
MIP	Tracking ANC contacts in the HMIS	Not tracked	First ANC visits tracked in the HMIS	1-3 ANC visits tracked in the HMIS	Up to 4 ANC visits tracked in the HMIS	All ANC visits in line with 2016 guidelines tracked in HMIS	4

Figure B4. Category: Supply Chain

Metrics/ Criteria	Relative Continuum					Estimate Level
	1	2	3	4	5	
Forecasting and Procurement Planning	Forecasts created ad hoc with no corresponding supply plans developed	Forecasts and supply plans overly reliant on assumptions or outdated/limited data, developed annually, and not necessarily used to inform initial procurements	Forecasts and supply plans incorporating service and/or consumption data are updated semi-annually and inform ongoing procurement actions	With donor support forecasts and supply plans incorporate near real-time services, consumption data, and seasonality; quarterly updates with corresponding changes made to procurement actions	Independent forecasts incorporating near real-time service, consumption data, and seasonality are updated quarterly; supply plans are updated monthly to inform ongoing procurement actions	3
Storage	Quantity and quality of infrastructure, as well as operations at all stock holding levels (central, sub-central/facility), compromise ability to ensure commodities, including ITNs, are adequately protected from damage, deterioration, and loss	Quantity and quality of infrastructure, as well as operations in at least one stock holding level ensure that commodities, including ITNs, are adequately protected from damage, deterioration and loss	Quantity and quality of infrastructure, as well as operations in at least two stock holding levels ensures that commodities, including ITNs are adequately protected from damage, deterioration and loss	With donor support, host country can scale infrastructure requirements, including for routine and campaign ITNs, via outsourced warehousing and ensure quality of infrastructure and operations at all stock holding levels, even those provided through the private sector, adequately protect commodities from damage, deterioration and loss	With very limited or no donor support, host country can scale infrastructure requirements, including for routine and campaign ITNs, via outsourced warehousing and ensure quality of infrastructure and operations at all stock holding levels, even those provided through the private sector, adequately protect commodities from damage, deterioration and loss	2

<p>Inventory Management</p>	<p>SOPs for inventory management non-existent, outdated or unable to be routinely adhered to</p>	<p>Updated SOPs for paper-based inventory management system in place but discrepancies between virtual and actual stock figures are common</p>	<p>SOPs for paper-based inventory management system at lower levels and use of an electronic inventory management at central level (WMS) maintain inventory count accuracy but data on expiration or lot/batch insufficiently tracked</p>	<p>Inventory data, incorporating multiple commodity attributes (quantity, expiration, lot/batch) is digitized in at least two stock holding levels with inventory records considered to be reliable</p>	<p>All inventory data attributes digitized at all stock holding levels with near real-time stock visibility, validated for accuracy, available across all stock holding points</p>	<p>3</p>
<p>Logistics Management Information System</p>	<p>No LMIS available for aggregating, analyzing, validating and displaying logistics data from lower levels of the logistics system</p>	<p>Paper-based LMIS that aggregates and displays logistics data from lower levels of the logistics system is available and used primarily to inform facility level resupply; poor LMIS reporting completeness and timeliness</p>	<p>Paper-based LMIS that aggregates and displays logistics data from lower levels of the logistics system used to inform facility level resupply, produce metrics for performance monitoring, and process improvement initiatives; adequate LMIS reporting completeness and timeliness</p>	<p>LMIS with digitized facility-level inventory and consumption data visible across some supply chain levels used to inform resupply, performance monitoring, process improvement initiatives and strategic planning; good LMIS reporting completeness and timeliness</p>	<p>LMIS with digitized facility-level inventory and consumption data visible across all supply chain levels is operational and integrated with other MIS platforms; excellent LMIS reporting completeness and timeliness</p>	<p>3</p>

<p>Transportation Management</p>	<p>Higher level resupply points irregularly allocate resources for resupplying lower level facilities; lower level facilities often required to provide own transport to retrieve commodities from resupply points; ITN distribution unorganized and inadequately resourced</p>	<p>System exists for transportation from higher to lower stock holding levels but is irregularly executed due to limited planning, lack of funding or incapacitated vehicles; significant donor-supplied transport resources including for ITN distribution</p>	<p>Transportation consistently undertaken per schedule, capacity exists to use third-party transporters, routes are regularized, proofs of delivery reviewed and reconciled; significant donor-supplied transport resources including ITN distribution</p>	<p>Transportation planning regularized and optimized with third-party transport used often, tracking of vehicles via regular check-ins or GPS, paper proofs of delivery reviewed and reconciled, key performance indicators tracked; some donor funding for transportation resources</p>	<p>Transportation scheduling and routing optimized, third-party transporter use regularized, GPS vehicle tracking, electronic proofs of delivery reviewed and reconciled, key performance indicators tracked and 3PL assignments/lanes allocated based on best value; no donor funding</p>	<p>4</p>
<p>Routine Distribution and Resupply</p>	<p>No routine requisition and resupply schedule between stock holding levels</p>	<p>Routine requisition and resupply between at least two stock holding levels according to a schedule but not well informed by consistently accurate demand and inventory figures</p>	<p>Routine resupply between all stock holding levels, informed by adequate demand and inventory accuracy, conducted according to a schedule, validated by malaria program personnel and routinely monitored</p>	<p>Donor-supported routine resupply between all stock holding levels, informed by accurate, near real-time demand signals and validated by malaria program staff, done according to a schedule and routinely monitored</p>	<p>Routine resupply between all stock holding levels, informed by accurate, timely and near real-time demand signals, done with limited or no donor support according to a schedule shared with all levels; malaria program management has visibility into planning, execution and results</p>	<p>3</p>

<p>Health Commodity Regulations and Policy</p>	<p>Legal basis for a medicine (and other health commodity) regulatory agency to function is absent or inappropriate; formal organizational structure for in-country stakeholders and relevant agencies with delegated authority absent or inadequate (e.g., up-to-date organogram of MOH); human and financial capacity to enable regulation weak or absent</p>	<p>Medicines framework exists and is sufficient to support basic regulatory functions including clinical dossier review (licensing) and marketing authorization with registration; documented domestic financial support to enable regulatory activities, including HR</p>	<p>All SDP levels have policies that address STG, quality assurance and HR; no consistent approach to pharmacovigilance or a standard reporting structure for pharmacovigilance events; overall quality management system in place to support interface of product licensing, registration, manufacturing, post-marketing surveillance</p>	<p>Strong policy and strategic leadership by government with firm grasp of budgets and financial sustainability; robust implementation plans, and supportive supervision, capacity building and guidance to managers within the system</p>	<p>MOH leads strategic functions such as policy formulation, quality assurance and oversight of policy implementation funds; ability to ensure product quality, automated drug registration, clear/transparent importation process, robust post-market surveillance system, and track and trace regulations developed or in process of implementation</p>	<p>3</p>
<p>Supply Chain Strategy and Governance</p>	<p>Human, organizational and financial capacity to develop or execute a supply chain strategic plan incorporating malaria SC specifics absent or inadequate</p>	<p>Human, organizational and financial capacity sufficient to develop and execute portions of a supply chain strategic plan incorporating malaria SC specifics</p>	<p>Approved, up-to-date supply chain strategic plan (with clear roles and responsibilities for all SC levels, stakeholder mapping, costs); includes risk mitigation and workforce development plans</p>	<p>Approved, up-to-date supply chain strategic plan (with clear roles and responsibilities for all SC levels, stakeholder mapping, costs); implementation of workforce development and risk mitigation plans with significant donor support</p>	<p>Human, organizational and financial capacity to execute and maintain a supply chain strategic plan incorporating malaria SC specifics present and maintained with minimum donor support</p>	<p>2</p>

Figure B5. Category: Strategic Information

Activity	Metrics/Criteria	Relative Continuum					Estimate Level
		1	2	3	4	5	
Data, Surveillance, Monitoring & Evaluation	Overall HMIS reporting rate (CY 2019)	<60%	60-69%	70-79%	80-89%	90%+	4
Data, Surveillance, Monitoring & Evaluation	Element-specific reporting rate: “Confirmed malaria cases among children under age 5” (CY 2019)	<60%	60-69%	70-79%	80-89%	90%+	4
Data, Surveillance, Monitoring & Evaluation	HMIS data quality assurance and quality control	Few standards exist for data collection, assembly, and analysis; ad hoc data quality reviews and audits for specific needs; no data-quality assurance plan and national coordinating body exist	Standards used for data collection, assembly and analysis in limited settings; some electronic tools used for data quality review and audit; data-quality assurance plan available	Standards defined and implemented nationally for data collection, assembly, analysis; data quality reviews and audits scheduled and include remediation process for identified issues; SM&E staff seconded to NMCP	Data reviews and audits integrated in strategic plans and conducted on a regular schedule; national data-quality governing body meets regularly; issues identified addressed via established remediation process	Continual review and audit (automated and manual) to ensure defined levels of data quality; data quality metrics used for ongoing improvement; national governing body and key stakeholders review data-quality assurance plan periodically	4

<p>Data, Surveillance, Monitoring & Evaluation</p>	<p>Reporting Systems</p>	<p>Data collection tools not standardized and procedures inconsistently followed; unstructured data collection and storage; no NMCP access to HMIS malaria data</p>	<p>Data systems support longitudinal health data (clinical, surveillance, M&E) in limited settings; data available for centrally mandated reporting; parallel malaria reporting system may exist</p>	<p>Most platforms/applications ensure data availability at all levels for decision support and M&E for authorized users; no parallel malaria reporting system; NMCP has access to HMIS malaria data</p>	<p>Data systems ensure reliable and appropriate access to data at all levels for authorized users; reporting requirement changes accommodated with minimal disruption to data availability; data systems support secondary data use; NMCP has access</p>	<p>Data availability monitored for continual improvements and to meet emerging health sector needs; reporting available from private facilities and community-level providers and can be disaggregated</p>	<p>4</p>
<p>Data, Surveillance, Monitoring & Evaluation</p>	<p>Data collection</p>	<p>Data not collected at community level (CHWs) and irregular or inaccurate at rural and more central health facilities; system is entirely paper based, but registers may be absent</p>	<p>Collection well managed at health facility level, but incomplete at community level; most collection and aggregation is paper based; registers generally available; timeliness and completeness remain challenges</p>	<p>Collection well managed at health facility and community level; most collection is paper based, aggregation is electronic; registers available; timeliness and completeness >80%, feedback to collectors limited</p>	<p>Collection at all levels; collection is electronic and sometimes paper based, aggregation is electronic; registers hold all program critical data; timeliness and completeness >80%, feedback to collectors standardized</p>	<p>Data collection occurs at all levels and is transmitted in real time with timely feedback to collectors and users of data; data checks exist at point of collection; electronic transmission is the norm, including to data collectors</p>	<p>4</p>

Data, Surveillance, Monitoring & Evaluation	Data use	Activities (analysis, interpretation, visualization) to ensure data use are rarely implemented	Limited data use activities are implemented (bulletin developed but analysis and interpretation for decision-making needs strengthening)	Country conducts regular data use activities (review meetings, bulletin at least quarterly, at least at the central level)	Country conducts regular data use activities at all levels (review meetings, bulletins, dashboard at least quarterly)	Country has developed own high-quality dashboard to facilitate data use and informed decision-making is evident at all levels frequently	4
Operations Research and Program Evaluation	PMI in-country OR/PE experience	No previous PMI OR/PE experience in country	PMI team has prepared concept notes but has not completed protocols or conducted OR/PE	PMI team has completed protocols and received approval for OR/PE; studies in planning, underway, or recently completed	PMI team and/or other country partners have completed a OR/PE study and prepared and shared reports	Multiple OR/PE studies completed that address malaria program implementation bottlenecks; publication and sharing of results, with involvement from MOH co-investigators	5
Operations Research and Program Evaluation	Country mechanisms for OR/PE review	No in-country process for research review, determination or IRB processes	Limited in-country processes for research review, determination and IRB oversight	Processes in place for research and IRB review with federal-wide assurance approval, but no previous PMI in-country OR/PE engagement	Processes in place for research and IRB review with federal-wide assurance approval with previous PMI in-country OR/PE engagement	Full complement of research review, approval, and oversight processes including data safety and monitoring boards; systems for results sharing	5
Operations Research and Program Evaluation	In-country partnerships for OR/PE	No in-country partners (academic, NGO, or other) with OR/PE experience	1-2 in-country partners with OR/PE experience, but no malaria-specific experience	3+ in-country partners with OR/PE experience; 1+ with some malaria expertise; no current PMI OR/PE work	3+ in-country partners with OR/PE experience; 1+ with malaria expertise; current or recent PMI OR/PE work	Multiple in-country partners with malaria experience in PMI OR/PE, including completed past work and reporting on malaria OR/PE	5

Operations Research and Program Evaluation	MOH capacity for conceptualizing problems needing scientific evaluation	No experience	Some but limited experience in identifying programmatic problems and prioritization	Experience with identifying program problems and prioritizing OR/PE	Experience with identifying problems needing OR/PE and developing study approaches with partners	Extensive experience with identification, prioritization, proposal development and conducting OR/PE	5
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Figure B6. Category: Support Systems

Activity	Metrics/Criteria	Relative Continuum					Estimate Level
		1	2	3	4	5	
SBC	National malaria SBC strategy to guide design and implementation of malaria SBC activities	No strategy	Strategy exists, but is low quality and missing key elements from the RBM SBC Working Group National Malaria SBC Strategy Template	High-quality strategy exists, but no evidence it has been used to guide design or implementation	High-quality strategy exists and is sometimes used to guide design and implementation of SBC activities	High-quality strategy exists and is used routinely to guide design and implementation of SBC activities	3
SBC	SBC technical working group	No group	Group exists in theory, but has not been operationalized or institutionalized	Group exists and meets routinely, but lacks clear pathways for coordination	Group exists and has effective pathways for coordination, but generally only coordinates at the national level	Group engages effectively in regular coordination at national and sub-national level	1
SBC	Formative assessments	No assessment of any kind conducted in last five years	No assessment of any kind conducted in last three years	Assessment conducted in last three years, but with significant quality issues	High-quality assessment conducted in the past three years, but results not widely disseminated	High-quality assessment conducted in the past three years and results widely disseminated	5

SBC	SBC interventions (targeted and tailored based on available behavioral, demographic, and epidemiological data)	No evidence available data used to inform intervention design	Available evidence referenced in intervention design; results do not typically inform final design, resulting in broad and unfocused SBC interventions	Available evidence generally used to loosely target SBC interventions to specific populations, but interventions not tailored to address behavioral determinants of those populations	Available evidence used to loosely target SBC interventions to specific populations and interventions somewhat tailored to address behavioral determinants of those populations	Available evidence used to target SBC interventions to specific populations and interventions well-tailored to address behavioral determinants of those populations	4
SBC	Capacity to support implementation of SBC activities	Generally weak at central and peripheral levels	Generally strong at the central level with sufficient expertise and resources to deliver high-quality SBC interventions	Generally strong at central and provincial levels with sufficient expertise and resources to deliver high-quality SBC interventions	Generally strong at the central, provincial, and district levels with sufficient expertise and resources to deliver high-quality SBC interventions	Generally strong at the central, provincial, district, and community levels with sufficient expertise and resources to deliver high-quality SBC interventions	3
Elimination	Elimination strategy and planning	No elimination or pre-elimination targets in the national strategic plan	Risk stratification conducted using latest incidence data and interventions targeted	Readiness assessment/capacity inventory conducted	Capacity built and systems in place to initiate elimination activities in target areas	Elimination activities implemented in target areas	5
Elimination	Scope of activities implemented (e.g. active case detection, PQ for Pf, foci investigation and response)	No elimination activities initiated	Elimination activities conducted in <25% of districts	Elimination activities conducted in 25-50% of districts	Elimination activities conducted in >50% of districts	Elimination or prevention of reintroduction activities conducted in all districts	4

Elimination	Surveillance system readiness to track all cases	Monthly, aggregate data	Case-based reporting initiated	Real-time, case-based reporting inclusive of all sectors and levels in target areas	Real-time, case-based reporting and response activities implemented	Real-time, case-based reporting and response activities implemented with data open/shared	3
Additional Health Systems Strengthening	Staffing	No staff	Manager and a few technical staff; not all intervention areas covered	Manager and technical staff for each intervention area; many staff have limited training and experience; limited program support staff	Full staffing of program areas and support systems but some staff need further training; limited plans and opportunities for training	Fully staffed with relevant training and experience; complete plan for professional development	3
Additional Health Systems Strengthening	Office space, transport	No office space or transport	Office space exists but is insufficient for staff; transport available at intervals but limited for program needs	Office space adequate for current staff but no growth possible; office not well positioned for access to MOH leadership; transport available but insufficient and not well managed/maintained	Office space adequate for current staff and some technical areas (e.g., lab) but not fully adequate for growth and all technical services; transport mostly sufficient	Office space fully adequate for current staff and technical needs (lab, insectary, meeting space, etc.) and some growth and well positioned in MOH; transport fully available for needs, including trucks and 4-wheel drive vehicles as needed (all maintained and managed)	3
Additional Health Systems Strengthening	Internet connectivity	No internet	Intermittent connectivity; poor bandwidth; challenging maintenance; very little budget	Mostly connected with some outages; ok but not ideal bandwidth; irregular maintenance; modest budget	Generally stable connections, adequate bandwidth for most work, fair to good maintenance and sufficient budget	Fully connected, maintained, good bandwidth for all needs, and sufficient budget including all needed hardware and software	3

<p>Additional Health Systems Strengthening</p>	<p>NMCP placement in MOH</p>	<p>NMCP exists but barely visible in MOH structure</p>	<p>NMCP visible in the MOH structure but NMCP manager reports to supervisor who is low in the MOH system</p>	<p>NMCP visible and manager reports to high-level leader in MOH (e.g., Director of Public Health or Permanent Secretary for Health)</p>	<p>NMCP highly visible and reports at a high level in MOH and has some access to other ministry leadership (e.g., education, agriculture)</p>	<p>NMCP highly visible in MOH and all other relevant ministries with ready access to country leadership (e.g., president/prime minister and parliament)</p>	<p>4</p>
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