PMI | U.S. PRESIDENT'S MALARIA INITIATIVE

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This 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 funding available to support the plan outlined here is pending finalization of the FY 2020 appropriation. If any further changes are made to this plan it will be reflected in a revised posting.

U.S. PRESIDENT'S MALARIA INITIATIVE

MALAWI

Malaria Operational Plan FY 2020

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ABBREVIATIONS

ACT	Artemisinin-based combination therapy
AL	Artemether-lumefantrine
ANC	Antenatal care
APS	Annual Program Statement
AS/AQ	Artesunate-amodiaquine
BMGF	Bill and Melinda Gates Foundation
CDC	Centers for Disease Control and Prevention
CDC-LTs	CDC miniature light trap
CY	Calendar year
DDT	Dichlorodiphenyltrichloroethane
DHS	Demographic and Health Survey
FY	Fiscal year
GHI	Global Health Initiative
Global Fund	Global Fund to Fight AIDS, Tuberculosis and Malaria
HLC	Human landing catches
HSA	Health Surveillance Assistants
IEC	Information, education, communication
IPTp	Intermittent preventive treatment for pregnant women
IRS	Indoor residual spraying
ITN	Insecticide-treated mosquito net
IVM	Integrated vector management
MIP	Malaria in pregnancy
MIS	Malaria indicator survey
MoH	Ministry of Health
MOP	Malaria Operational Plan
MSP	Government of Malawi's 2017-2022 Malaria Strategic Plan
NMCP	National Malaria Control Program
PMI	U.S. President's Malaria Initiative
RDT	Rapid diagnostic test
SBC	Social and behavior change
SM&E	Surveillance, monitoring, and evaluation
SP	Sulfadoxine/pyrimethamine
UNICEF	United Nations Children's Fund
USAID	United States Agency for International Development
WHO	World Health Organization

I. INTRODUCTION

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 Malawi to end malaria. PMI has been a proud partner of Malawi since 2006, helping to decrease child death rates by 48% through investments totaling almost $294.2 million.

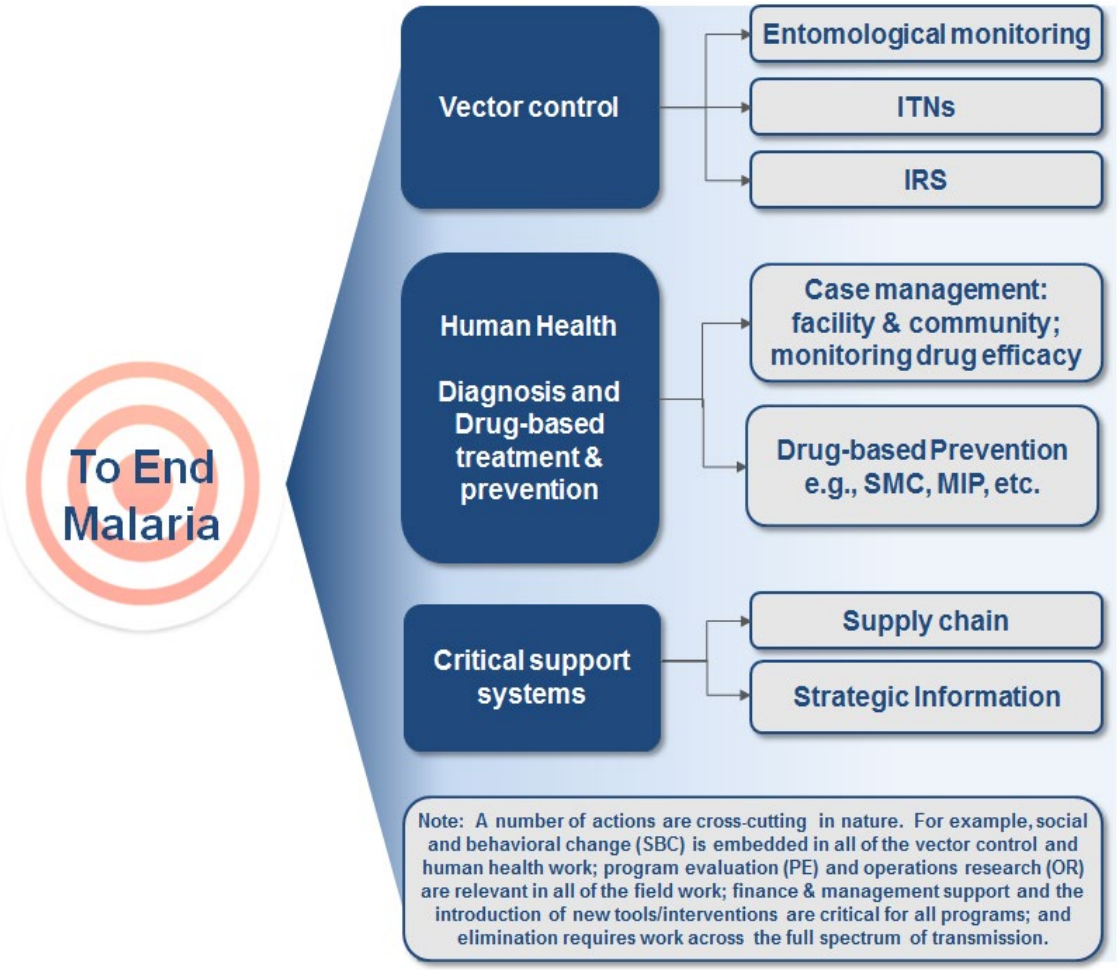
The proposed PMI fiscal year (FY) 2020 budget for Malawi is $23 million. This Malaria Operational Plan (MOP) outlines planned PMI activities in Malawi for FY 2020. Developed in consultation with the National Malaria Control Program (NMCP) and key stakeholders, proposed activities reflect national and 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 Malawi as well as other donors and partners.

Malawi at a glance

- **Geography:** Malawi is a landlocked country bordered by Tanzania to the north, Zambia to the west, and Mozambique to the east and south.
- **Climate:** Annual rains typically begin in November/December and last through April. The low-lying areas are hotter and wetter, while the highlands are cooler.
- **Population in 2018:** 17,563,749 (2018 Malawi Population and Housing Census)
- **Population at risk of malaria:** 100%
- **Malaria incidence per 1000 population:** 398 (2018 DHIS2)
- **Under-five mortality rate per 1000 live births:** 63 (2017 Malaria Indicator Survey)
- **World Bank Income Class & GDP:** Low Income, $7.065B (2018 World Bank Data)
- **Political system:** Multiparty republic
- **Trafficking in Persons designations, 2016-2018:** Tier 2 (UNHCR)
- **Malaria funding and program support partners include (but are not limited to):**
    - Global Fund to Fight AIDS, Tuberculosis and Malaria (Global Fund)
    - U.S. President's Malaria Initiative (PMI)
    - World Health Organization (WHO)
    - Department for International Development (DFID)
- **PMI Support of National Malaria Control Strategy:** PMI supports all elements of the National Malaria Control Strategy except for larval source management. (See III. Overview of PMI's support of Malawi's Malaria Control Strategy for additional details)
- **PMI Investments:** Malawi began implementation as a PMI focus country in 2006. The proposed FY 2020 PMI budget for Malawi is $23 million; that brings the total PMI investment to nearly $317 million.

PMI organizes its activities and planning levels around the activities in Figure 1, in line with the national malaria strategy.

Figure 1. PMI's Approach to End Malaria



PMI's approach is both consistent with and contributes to USAID's Journey to Self-Reliance framework. Building and strengthening the capacity of Malawi's people and institutions – from the central to district to community level – to effectively lead and implement evidence-based malaria control and elimination activities remains paramount to PMI. As denoted in Table 2 (the budget table), nearly all of PMI's planned support for FY 2020 in the areas of vector control, human health, supply chain and strategic information contains elements of capacity building and system strengthening. PMI/Malawi will continue to rely on and engage with local partners and the USAID Mission is deliberately expanding its local partner base through the Annual Program Statement (APS) *Leveraging Local Capacity to Strengthen Health Service Delivery*. This APS is an opportunity for local organizations to work with USAID/Malawi to strengthen the delivery of health services through creative, innovative, and effective interventions to address key priority challenges in malaria, human resources for health (HRH), HIV/AIDS, social behavior change (SBC), and youth.

To accelerate the journey to self-reliance, PMI developed a programmatic inventory to assess the strengths and persistent challenges of Malawi's program (see Annex B). The activities proposed in this MOP are tailored to draw on these strengths and address the weaknesses, which will be monitored to evaluate the effectiveness of capacity building efforts. In addition, while PMI is cognizant that it will take time before Malawi is capable of fully financing its development priorities, PMI will work with other partners (e.g., the Global Fund) to jointly track Malawi's funding commitments across the malaria portfolio.

II. MALARIA SITUATION AND MALARIA CONTROL PROGRESS IN MALAWI

Malaria is endemic in more than 95% of the country. Transmission is perennial in most parts of the country and peaks after the start of the annual rains that typically begin in November/December and last through April. The highest transmission areas are found along the hotter, wetter, and more humid low-lying areas (lakeshore, Shire River Valley and central plain), while the lowest risk areas fall along the highlands of Rumphi, Mzimba, Chitipa and Kirk Range. Malaria continues to be a major public health problem and is responsible for approximately 6.24 million presumed and confirmed cases reported annually from health facilities and by the community case management program, and 30% of all outpatient visits across all ages (2018 Health Management Information System [HMIS] data, unpublished). Among children under five years of age, malaria parasite prevalence by microscopy was 24% nationally (2017 Malaria Indicator Survey [MIS]). Pregnant women and their fetuses are at high risk of the negative consequences of malaria. From 1996-2007, the incidence of placental malaria fell from 25% to 7% at the main referral hospital in Blantyre (Feng, et al., 2010). *Anopheles funestus* is considered to be the primary vector species; *An. gambiae* s.s. and *An. arabiensis* also are present and may predominate in some areas at certain times of the year. *Plasmodium falciparum* is the most common species of malaria, accounting for 98% of the infections and all severe disease and deaths. Resistance to carbamate insecticides was first documented in 2011, and data from 2014-15 showed mortality rates of 5% to 19% in the three districts sampled. All *An. funestus* populations tested against the organophosphates malathion and pirimiphos-methyl have been fully susceptible, while susceptibility to Dichlorodiphenyltrichloroethane (DDT) has varied by site and over time, from 65% to 100% mortality.

Figure 2. Trends in Malaria Prevalence, Percentage of Children age 6-59 Months who Tested Positive for Malaria by Microscopy and RDT

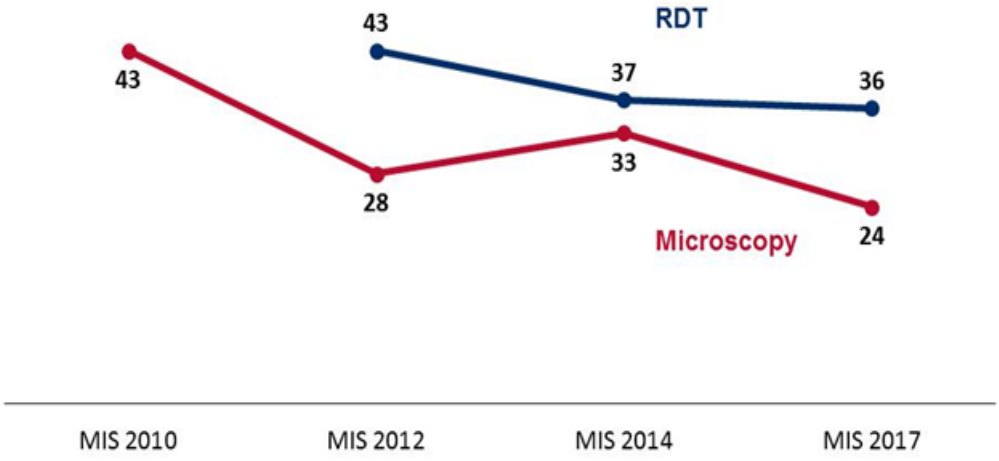


Figure 3. Trends in Prevalence of Low Hemoglobin

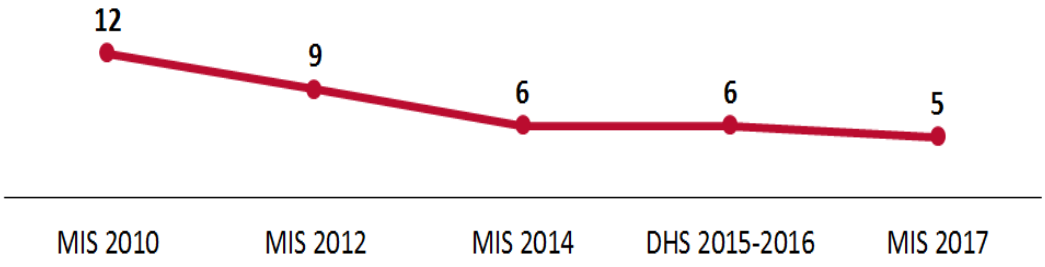


Figure 4. Malaria Parasite Prevalence among Children under Five Years of Age by Geographic Area

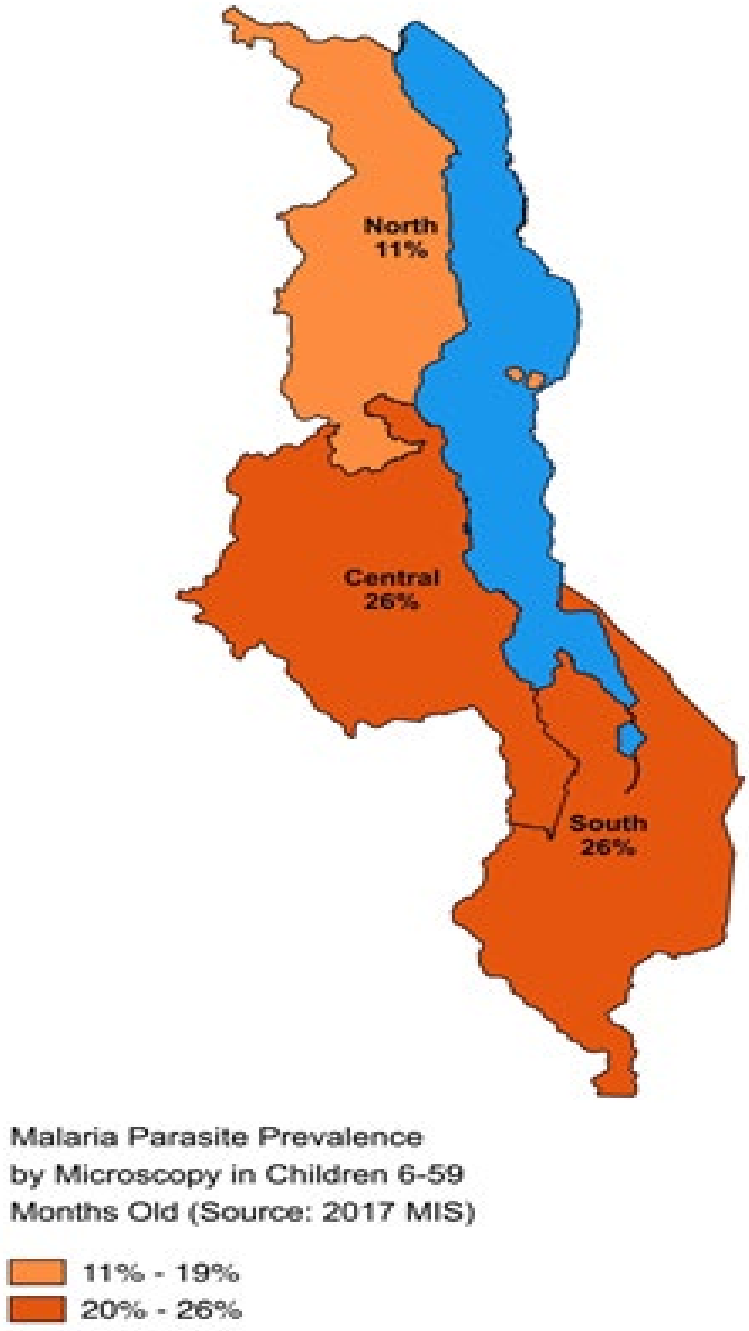


Figure 5. Key Indicators for Malaria Prevention and Treatment Coverage and Impact Indicators from Demographic Health Surveys (DHS) and Malaria Indicator Surveys (MIS) from 2006-2018.

Indicator	2006 MICS	2010 MIS	2010 DHS	2012 MIS	2014 MIS	2015-2016 DHS*	2017 MIS
% Households with at least one ITN	38	58	57	55	70	57	82
% Households with at least one ITN for every two people	N/A	N/A	N/A	19	30	24	42
% Population with access to an ITN	N/A	N/A	N/A	37	52	39	63
% Population that slept under an ITN the previous night	N/A	N/A	48	41	53	34	55
% Children under five years of age who slept under an ITN the previous night	25	55	38	56	67	43	68
% Pregnant women who slept under an ITN the previous night	N/A	49	35	51	62	44	63
% Children under five years of age with fever in the last two weeks for whom advice or treatment was sought[2]	N/A	N/A	N/A	58	59	67	54
% Children under five years of age with fever in the last two weeks who had a finger or heel stick	N/A	7	17	21	32	52	38
% Children receiving an Artemisinin-based combination therapy (ACT) among children under five years of age with fever in the last two weeks who received any antimalarial drugs	N/A	N/A	N/A	91	93	92	96
% Women who received two or more doses of IPTp during their last pregnancy in the last two years[1]	47	60	55	54	64	64	76
% Women who received three or more doses of IPTp during their last pregnancy in the last two years[1]	N/A	N/A	18	N/A	13	30	41
Under-five mortality rate per 1,000 live births	122	N/A	112	N/A	N/A	64	N/A
% children under five years of age with parasitemia (by microscopy, if done)	N/A	43	N/A	28	33	N/A	24

Indicator	2006 MICS	2010 MIS	2010 DHS	2012 MIS	2014 MIS	2015-2016 DHS*	2017 MIS
% children under five years of age with parasitemia (by rapid diagnostic test (RDT), if done)	N/A	N/A	N/A	43	37	N/A	36
% Children under five years old with severe anemia (Hb<8g/dl)	N/A	12	3	9	6	6	5

* For ITN indicators, it should be noted that data collection for the 2015-16 DHS was conducted from October 2015 – January 2016, several months prior to a mass ITN distribution campaign which was conducted from March to May 2016 in 19 of Malawi's 28 districts. Additionally, given the DHS occurs during the low transmission period, while the MIS typically occurs near peak transmission season, some indicators are affected.

[1]Note that this indicator has been recalculated according to the newest definition, at least two doses of SP/Fansidar from any source wherever possible

[2]Note that this indicator has been recalculated according to the newest definition, care or treatment from any source excluding traditional practitioners wherever possible

Figure 6. Evolution of key malaria indicators reported through routine surveillance systems

	2014	2015	2016	2017	2018
# Suspect malaria cases[1]	N/A	N/A	N/A	11,180,300	13,164,827
# Patients receiving diagnostic test for malaria[2]	N/A	N/A	N/A	10,982,821	13,077,088
Total # malaria cases[3] (confirmed and presumed)	**6,402,715**	**6,239,378**	**6,423,422**	**6,105,930**	**7,145,094**
# Confirmed cases[4]	2,951,841	3,862,199	5,478,323	6,040,009	6,997,200
# Presumed cases[5]	3,450,874	2,377,179	945,099	65,921	147,894
% Malaria cases confirmed[6]	46%	62%	85%	99%	98%
Test positivity rate (TPR)[7]	52%	50%	54%	55%	54%
Total # <5 malaria cases[8]	**3,614,983**	**3,469,283**	**3,231,445**	**2,918,304**	**3,395,529**
% Cases under 5[9]	56%	56%	50%	48%	48%
Total # Inpatient malaria cases	**-**	**-**	**-**	**76,477**	**86,257**
Total # malaria deaths[10]	**4,493**	**3,589**	**2,671**	**3,613**	**2,967**
# Facilities reporting[11] (HMIS-15)	7458	7562	7621	7036	7539
# Facilities reporting[11] (Village Clinic)	-	-	6232	6578	6849

	2014	2015	2016	2017	2018
# Facilities reporting[11] Malaria Report	5450	6467	7332	7618	8105
Data form completeness (%)[12]	-	-	-	-	-
HMIS-15 Form	91%	92%	92%	85.3%	91%
Village Clinic (VC) Form	-	-	77%	81%	84%
Malaria Facility Report (MFR) Form	67%	79%	88%	92%	97%

Data sources and comments:
The rise in incidence of malaria may be attributed to improved data capturing and reporting.
The presumed case shown here have been generated by subtracting confirmed cases from total cases, however beginning 2019 the malaria reporting form was modified to start capturing presumed cases from the outpatient register.
N/A = not available

Definitions:
1 Number of patients presenting with signs or symptoms considered to be possibly due to malaria (e.g., this could be the number of patients presenting with fever or history of fever in the previous 24 or 48 hours)
2 Number of patients receiving a diagnostic test for malaria (RDT or microscopy). All ages, outpatient, inpatient
3 Total # cases: Total number of reported malaria cases. All ages, outpatient, inpatient, confirmed and unconfirmed cases.
4 # confirmed cases: Total diagnostically confirmed cases. All ages, outpatient, inpatient.
5 # presumed cases: Total clinical/presumed/unconfirmed cases. All ages, outpatient, inpatient.
6 % Malaria Cases confirmed: # confirmed cases (#4 above) / Total # cases (#3 above)
7 Test Positivity Rate (TPR): Number of confirmed cases (#4 above)/Number of patients receiving a diagnostic test for malaria (RDT or microscopy) (#2 above)
8 Total #<5 cases: Total number of <5 cases. Outpatient, inpatient, confirmed, and unconfirmed.
9 Total # <5 cases (#8 above) / Total # of cases (# 3 above)
10 Total # Malaria Deaths Reported: All ages, outpatient, inpatient, confirmed, and unconfirmed.
11 Total # of health facilities reporting data into the HMIS/DHIS2 system for that year.
12 Data 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).

Malawi specific notes:
Malaria case data in Malawi is submitted into the DHIS2 on three different forms:

- The HMIS-15 form includes malaria cases (clinical and confirmed) and inpatient malaria deaths from facilities only; both disaggregated by under / over 5 years.
- The malaria facility reporting form includes suspected cases tested, facility-level confirmed cases, and inpatient malaria deaths; disaggregated by under / over 5 years.
- The village clinic reporting form includes under five malaria cases confirmed and unconfirmed.

The clinical case numbers shown here have been generated manipulating data from the three sources, which have different reporting and completeness rates, and thus do not reflect an accurate estimate of clinical malaria cases. For example, if a facility only submits the HMIS-15 form, which includes all cases, but not the malaria facility report, which includes confirmed cases, all cases from that facility would be counted as clinical here. Similarly, if a facility only submits the malaria facility report form, but an incomplete HMIS-15 form, that facility could have no clinical cases for that month.

III. OVERVIEW OF PMI'S SUPPORT OF MALAWI'S MALARIA CONTROL STRATEGY

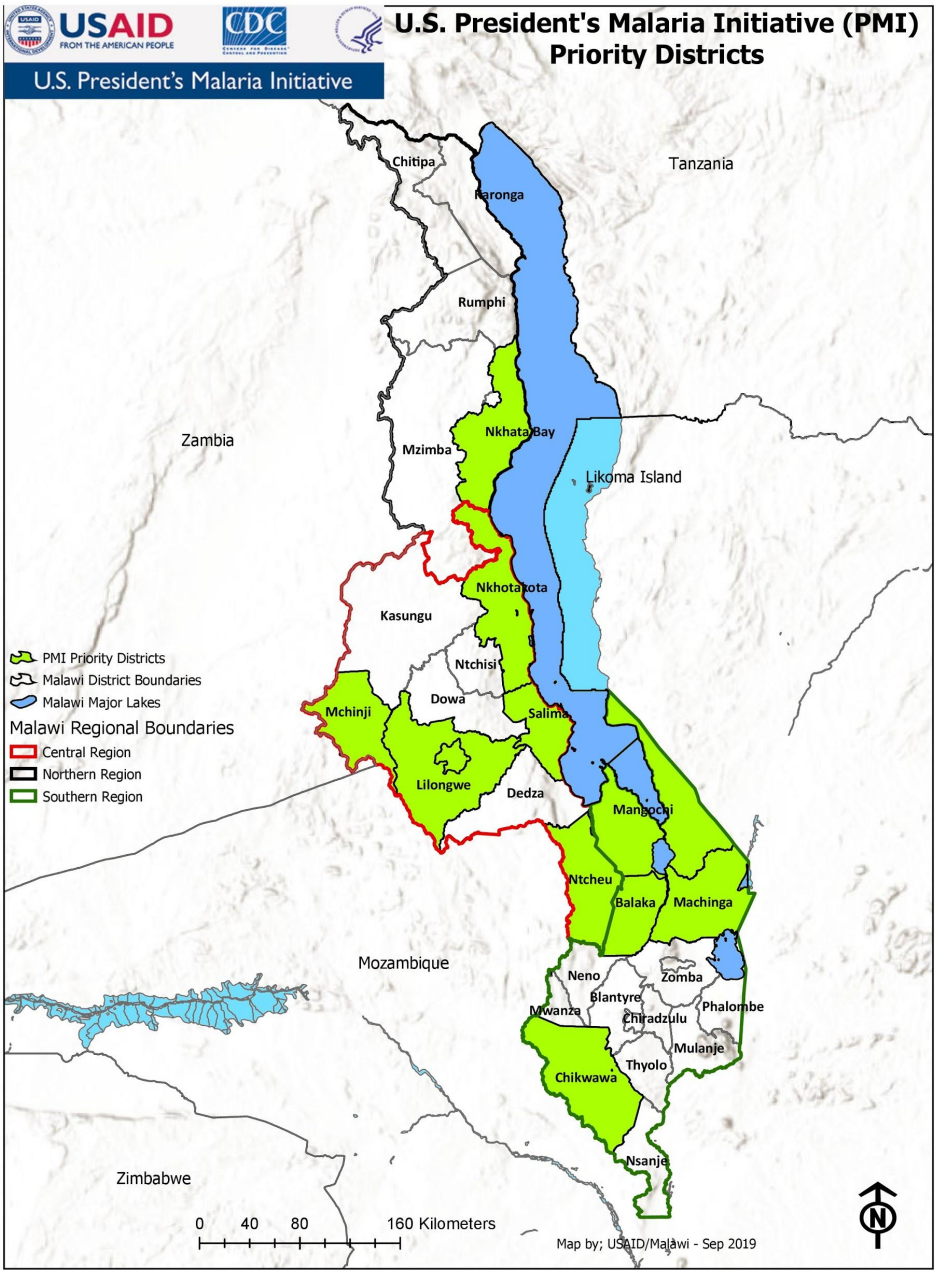
Malawi's NMCP seeks to reduce malaria incidence from 386/1000 in 2015 to 193/1000 in 2022 through universal coverage and equitable distribution of key malaria interventions. The implementation of Malawi's Malaria Control Strategy is guided by evidence-based decision making, partnership, collaboration, and appropriate innovative technologies. Similar to PMI, Malawi's NMCP focuses on the following intervention areas: vector control, case management, social and behavior change (SBC), malaria in pregnancy, procurement and supply chain

management, operational research (OR), and surveillance, monitoring, and evaluation (SM&E). One area of difference between PMI and the NMCP is larval source management which is included as a vector control strategy in Malawi's Malaria Control Strategy but not in PMI's Strategy. Malawi's Malaria Control Strategy also includes a section on Program Management that includes human resources, planning and review meetings, and resource-mobilization. The PMI Strategy includes a health systems strengthening component that mostly aligns with Malawi's Malaria Control Strategy but differs in a few small areas, such as resource mobilization and planning and review meetings.

The largest supporters of Malawi's Malaria Control Strategy are PMI and the Global Fund, and there are no other major donors with malaria as a primary focus. Together, PMI and the Global Fund's investments ensure the entire country has access to life-saving interventions to prevent, diagnose and treat malaria.

At the time of MOP writing, PMI's current service delivery, systems strengthening, and communications implementing partners are working in 10 focus districts (Figure 7). This includes the following districts: Nkhatabay, Nkhotakota, Salima, Mchinji, Lilongwe, Mangochi, Ntcheu, Balaka, Machinga, and Chikwawa. PMI procures and distributes RDTs, ACTs, insecticide-treated mosquito nets (ITNs), and SP nationwide to all 28 districts. However, the USAID/Malawi mission is currently developing its new Country Development Cooperation Strategy (CDCS) to start in 2020/21 and new implementing mechanisms are in development, thus the geographic scope of PMI may shift by the time of implementation of the FY 2020 MOP activities.

Figure 7. PMI Intervention Support Map



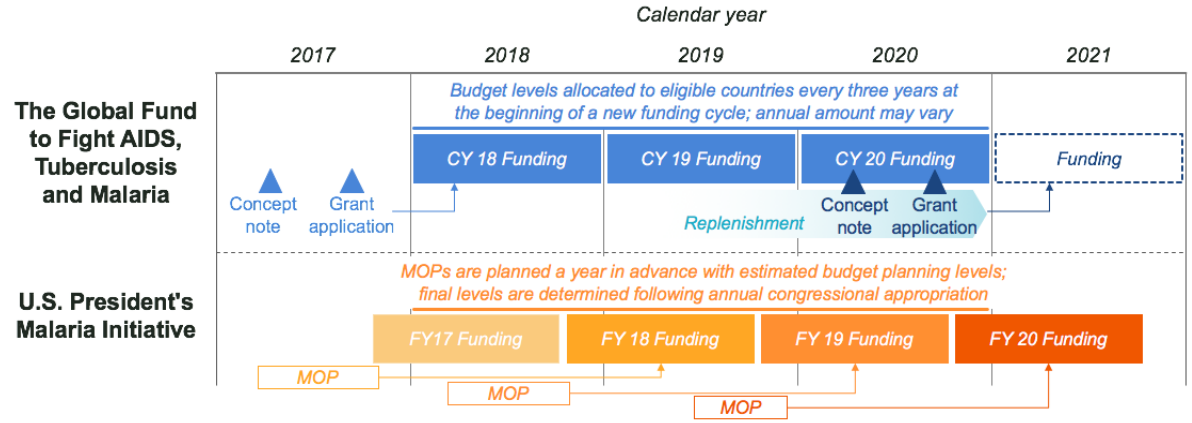
IV. PARTNER FUNDING LANDSCAPE

PMI emphasizes the importance of partner alignment on malaria control. With the recognition that each of the agencies emphasizes complementary funding support for the national malaria control effort in a given country, over the last year, PMI, Global Fund, and the Bill and Melinda Gates Foundation (BMGF) set out to harmonize financial, supply chain, and programmatic data,

and this effort remains ongoing as of the time of this MOP. A harmonized financial taxonomy has been developed for PMI and Global Fund (i.e. mapping cost categories across organizations).

Figure 8 visualizes the annual cycle of PMI funding and the MOP implementation year. As the figure illustrates, any given FY MOP funds activities that take place during the next FY. For example, a FY 2018 MOP funds implementation during FY 2019. Whereas Global Fund funding (and often, other partners and host country governments) is based on a three-year grant cycle on a calendar year (CY) timeframe during which activities were implemented. Annual PMI country budget allocations depend largely on the U.S. Congress' total overall malaria funding appropriation to USAID in a given fiscal year, as well as other considerations (e.g. previous funding levels, activity and program pipelines, other donor contributions, known commodity needs/gaps, progress on ongoing PMI-supported activities, clear evidence of continued government commitment to malaria control).

Figure 8: PMI and Global Fund Funding Cycle Alignment



Footnote: In some cases, Global Fund's funding may come in partway through the calendar year. Funding levels in "Section IV - Partner Funding Landscape" and commodity procurement amounts listed in "Annex A - Intervention Specific Data" may differ given the lag between the year that funding was planned and the year when procurement orders were placed. Differences may be a reflection of timing and/or based on changes in commodity consumption levels at country level, changes in commodity costs, or other donor orders.

The tables below summarize contributions by external partners and host country government in calendar years 2018-2020, with the goal of highlighting total country investments. For Malawi, data is available for PMI (FY 2018) and Global Fund (CY 2018-2020). As the Global Fund 2021-2023 grant funding cycle is not yet underway at the time of this FY 2020 MOP development, Global Fund country investments for the 2021 implementation period and beyond are not yet known. Note that the host country government invests substantial funding into the national-to-local infrastructure and service delivery for malaria and many other programs. However, there has not been a standardized method for attributing those investments to malaria specifically. Thus, it may not yet be possible in the FY 2020 MOP cycle to attribute funding from the host country government. There may be similar challenges for other partners.

Figure 9. Annual Budget by Level 1 Category

Year[1]	Funder	Vector Control	Case Management	Drug-Based prevention[2]	Supply Chain[3]	Monitoring, Evaluation & Research	Other Cross-Cutting and Health Systems Strengthening	Total
FY17/ CY18	PMI	$6.2M	$6.6M	$0.6M	$3.3M	$0.9M	$4.4M	**$22.0M**
	Global Fund	$27.7M	$5.9M	-	$6.2M	$0.4M	$6.0M	**$46.3M**
	Total	**$33.9M**	**$12.5M**	**$0.6M**	**$9.5M**	**$1.3M**	**$10.4M**	**$68.3M**
FY18/ CY19	PMI	$9.2M	$4.5M	$0.6M	$3.5M	$1.2M	$4.9M	**$24.0M**
	Global Fund	$4.7M	$7.2M	-	$1.4M	$1.0M	$1.6M	**$15.8M**
	Total	**$13.9M**	**$11.8M**	**$0.6M**	**$4.9M**	**$2.2M**	**$6.4M**	**$39.8M**
FY19/ CY20	PMI	$8.3M	$5.6M	$.7M	$2.8M	$1.0M	$4.5M	**$23.0M**
	Global Fund	-	$2.7M	-	$.5M	-	$.5M	**$3.6M**
	Total	**$8.3M**	**$8.3M**	**$0.7M**	**$3.3M**	**$1.0M**	**$5.0M**	**$26.6M**

1. Each year's figures represent the FY for PMI and one CY for GFATM that most closely align 2. Drug-based prevention, including SMC and MIP where relevant; 3. Covers management of in-country warehousing & distribution of malaria commodities, except for ITNs which are separately captured under "Vector Control"

Note: Categories shown reflect the harmonized financial taxonomy (Levels 1-3) developed by BMGF, GFATM, and PMI in 2019, as part of a broader data harmonization initiative; potential for categories to continue to evolve through FY 2020 MOP process, as well as for additional donors and host country governments to adopt and reflect funding using same categories.

Figure 10. Annual budget by Level 3 category, detailed breakdown for PMI and Global Fund

Level 1 Category	Level 3 Category	FY17/CY18[1]		FY18/CY19[1]		FY19/CY20[1]	
		PMI	GFATM	PMI	GFATM	PMI	GFATM
Vector Control	Procure ITNs for Continuous Distribution	$4.0M	-	$3.7M	-	$2.9M	-
	Distribute ITNs via Continuous Distribution	$1.2M	-	$1.2M	-	$1.2M	-
	Procure ITNs for Mass Campaigns	-	$27.7M	-	-	-	-
	Distribute ITNs via Mass Campaigns	-	-	-	-	-	-
	Other ITN Implementation*	$0.2M	-	-	-	-	-
	IRS Implementation[4]	$0.3M	-	$3.7M	-	$3.7M	-
	Procure IRS Insecticide[4]	-	-	-	$4.6M	-	-
	Other IRS*	-	-	$0.04M	-	$0.04M	-
	Entomological Monitoring	$0.5M	-	$0.6M	$0.1M	$0.4M	-

Level 1 Category	Level 3 Category	FY17/CY18[1]		FY18/CY19[1]		FY19/CY20[1]	
		PMI	GFATM	PMI	GFATM	PMI	GFATM
	SBC for Vector Control[5]	-	-	-	-	-	-
	Other vector control measures	-	-	-	-	-	-
	Removing human rights- and gender-related barriers to vector control programs**	-	-	-	-	-	-
Case Management	Active Case Detection**	-	-	-	-	-	-
	Community-based case management	-	$0.2M	-	$0.2M	-	-
	Facility-based case management	-	-	-	-	-	-
	Private-sector case management	-	-	-	-	-	-
	Procure ACTs	$3.0M	-	$0.7M	-	$0.9M	-
	Procure Drugs for Severe Malaria	-	-	-	-	-	-
	Procure Other Diagnosis-Related Commodities	$0.2M	-	$0.2M	-	$0.1M	-
	Procure Other Treatment-Related Commodities	-	$4.8M	-	$6.1M	-	$2.6M
	Procure RDTs	$1.5M	-	$1.8M	-	$2.5M	-
	Therapeutic Efficacy	-	-	-	-	-	-
	SBC for Case Management[5]	-	-	-	-	-	-
	Other Case Management	$2.0M	$0.9M	$1.9M	$0.9M	$2.0M	$0.1M
Drug-Based Prevention[2]	Procure SMC-Related Commodities	-	-	-	-	-	-
	SMC Implementation	-	-	-	-	-	-
	Prevention of Malaria in Pregnancy Implementation	$0.3M	-	$0.3M	-	$0.3M	-
	Procure IPTp-Related Commodities	$0.3M	-	$0.3M	-	$0.4M	-
	IPTi**	-	-	-	-	-	-
	SBC for Drug-Based Prevention[5]	-	-	-	-	-	-
	Other Prevention**	-	-	-	-	-	-

Level 1 Category	Level 3 Category	FY17/CY18[1]		FY18/CY19[1]		FY19/CY20[1]	
		PMI	GFATM	PMI	GFATM	PMI	GFATM
Supply Chain[3]	In-country Supply Chain[3]	$1.8M	-	$1.2M	-	$1.2M	-
	Supply Chain Infrastructure	-	-	-	-	-	-
	Ensuring Quality	-	-	-	-	-	-
	Pharmaceutical Management Systems Strengthening	$1.5M	-	$2.3M	-	$1.6M	-
	Supply Chain System Strengthening	-	$6.2M	-	$1.4M	-	$0.5M
Monitoring, Evaluation & Research	Reporting, Monitoring, and Evaluation	$0.9M	$0.1M	$1.1M	$0.4M	$1.0M	-
	Program and data quality, analysis and operations research	-	$0.3M	-	$0.6M	-	-
	Surveys	-	-	$0.2M	-	-	-
	Other Data Sources**	-	-	-	-	-	-
	Support for FETP*	-	-	-	-	-	-
Other Cross-Cutting and Health Systems Strengthening	Integrated service delivery, quality improvement, and national health strategies**	-	-	-	-	-	-
	Financial management systems**	-	-	-	-	-	-
	Community responses and systems**	-	$0.1M	-	$0.2M	-	-
	Support for PCV and SPAs*	-	-	$0.0M	-	$0.0M	-
	Cross-Cutting Human Resources for Health**	-	$3.5M	-	$0.2M	-	-
	Central and Regional Program management[6]	$0.5M	$0.2M	$0.3M	$0.3M	$0.5M	$0.3M
	In-country Staffing and Administration*	$2.1M	-	$2.6M	-	$2.5M	-
	Other Program Management**	-	$2.2M	-	$1.0M	-	$0.2M
	SBC Unspecified[5]	$1.8M	-	$2.0M	-	$1.5M	-
Total		**$22.0M**	**$46.3M**	**$24.0M**	**$15.8M**	**$23.0M**	**$3.6M**

[1] Each year's figures represent the FY for PMI and CY for GFATM that most closely align;

[2] Drug-based prevention, including SMC and MIP where relevant;

[3] Covers management of in-country warehousing & distribution of malaria commodities, except for ITNs which are captured in "Vector Control";

[4] May include cost of IRS insecticides if full cost of IRS implementation including commodities was bundled in single line in prior year's Table 2;

[5] SBC was not historically split in the PMI budget across intervention areas, hence the row “SBC (unspecified)” for the FY2020 MOP cycle. Going forward, SBC proposed activities will be categorized across vector control, case management, and prevention (new categories).

[6] PMI Proposed Activity "National-level support for case management" rolls up under "Case Management" Level 1

Note: Categories shown reflect the harmonized financial taxonomy (Levels 1-3) developed by BMGF, GFATM, and PMI in 2019, as part of a broader data harmonization initiative; potential for categories to continue to evolve through FY 2020 MOP process, as well as for additional donors and host country governments to adopt and reflect funding using same categories.

* Category currently funded by PMI only

** Category currently funded by Global Fund only

Figure 11. Annual budget, breakdown by commodity

Year[1]	Funder	ITNs for Continuous Distribution	ITNs for Mass Distribution	IRS Insecticide[4]	ACTs	RDTs	IPTp-Related	Total
FY17/CY18	PMI[2]	$4.0M	-	-	$3.0M	$1.5M	$0.3M	**$8.5M**
	Global Fund[3]	-	$27.7M	-	-	-	-	**$27.7M**
	Total	**$4.0M**	**$27.7M**	**-**	**$3.0M**	**$1.5M**	**-**	**$36.2M**
FY18/CY19	PMI[2]	$3.7M	-	-	$0.7M	$1.8M	$0.3M	**$6.2M**
	Global Fund[3]	-	-	$4.6M	-	-	-	**$4.6M**
	Total	**$3.7M**	**-**	**$4.6M**	**$0.7M**	**$1.8M**		**$10.8M**
FY19/CY20	PMI[2]	$2.9M	-	-	$0.9M	$2.5M	$0.4M	**$6.4M**
	Global Fund[3]	-	-	-	-	-	-	**-**
	Total	**$2.9M**	**-**	**-**	**$0.9M**	**$2.5M**	**-**	**$6.4M**

[1] Each year's figures represent the FY for PMI and CY for GFATM that most closely align.
[2] PMI commodity costs are fully loaded, including costs for the ex-works price of the commodity, quality control, freight, insurance, and customs.
[3] GFATM commodity costs in table above only include ex-works commodity value in a given year. Additional costs, including quality control, freight, insurance, and customs totaled $0.0 over the CY2018-2020 period;
[4] IRS insecticide; for PMI, IRS insecticide commodity costs may be inextricable from IRS implementation costs in historical data – field left blank where this is the case.
Note: Categories shown reflect the harmonized financial taxonomy (Levels 1-3) developed by BMGF, GFATM, and PMI in 2019, as part of a broader data harmonization initiative; potential for categories to continue to evolve through FY 2020 MOP process, as well as for additional donors and host country governments to adopt and reflect funding using same categories. No data exists for Severe Malaria or SMC-Related Categories.

V. ACTIVITIES TO BE SUPPORTED WITH FY 2020 FUNDING

Please see the FY 2020 budget tables (Tables 1 and 2) for a detailed list of activities PMI proposes to support in Malawi with FY 2020 funding. Please refer to www.pmi.gov/resource-library/mops for the latest tables. Key data used for decision-making can be found in Annex A.

ANNEX A: INTERVENTION-SPECIFIC DATA

1. VECTOR CONTROL

NMCP objective
● The Government of Malawi's 2017-2022 Malaria Strategic Plan (MSP) promotes an integrated vector management (IVM) strategy, including vector surveillance, insecticide resistance management, routine and mass distribution of ITNs, geographically targeted indoor residual spraying (IRS), and larval source management. The MSP targets at least 90% of the population to use one or more malaria preventative interventions by the year 2022. ● Malawi aims to achieve universal coverage with ITNs, defined as one net for every two people, with the objective of increasing net ownership and net usage among pregnant women and children under five years of age to at least 90%. ● IRS will be conducted during the right time of year, in line with WHO standards, focused in high burden districts, and scaled up in phases according to the IVM strategy.
NMCP approach
● The NMCP ITN policy promotes distribution of free ITNs for children born in health facilities, children attending their first visit under the Expanded Program on Immunization (EPI) if an ITN was not received at birth, and to pregnant women at their first visit to an antenatal care (ANC) clinic.[1] The policy also supports time-limited, national, free distribution campaigns that are conducted every two to three years. ● Within the MSP, Malawi intends to revamp IRS in selected, suitable epidemiology areas, with a target of spraying in eleven high burden districts by 2022. ● The NMCP developed and adopted an evidence-based IVM strategy that guides future vector control activities and entomologic monitoring. Given the emergence and expansion of pyrethroid and carbamate resistance, the high cost of alternative insecticides, and limited funding from the Government of Malawi, the drafted IVM implementation plan calls for a more limited and targeted expansion of IRS.
PMI objective, in support of NMCP
The MSP promotes an IVM strategy, including vector surveillance, insecticide resistance management, routine and mass distribution of ITNs, geographically targeted IRS, and larval source management. PMI supports the use of all of these interventions, with the exception of larval source management.

[1] In practice, ITNs are distributed for newborns following delivery at a health facility and at ANC, but not through EPI visits, as this would be logistically difficult.

PMI-supported recent progress (past ~12-18 months)
● PMI/Malawi supported entomological monitoring in 11 sentinel sites in 5 targeted districts. ● CDC provided technical assistance for entomological monitoring through in-country visits and virtual document review and technical discussions. ● PMI supported the procurement and distribution of approximately 1.2 million ITNs to pregnant women and children less than one year of age through the routine distribution system ● PMI/Malawi supported ITN durability monitoring, with the third year of data collected in May 2019. ● PMI/Malawi provided technical assistance for the 2018 ITN mass distribution campaign, both through funding for Alliance for Malaria Prevention (AMP) consultants and through participation in the National Task Force for the campaign. ● PMI/Malawi supported national-level SBC activities to improve demand for ITNs, increase use, and promote care. Activities developed as part of the mass campaign also attempted to mitigate the misuse of ITNs for fishing and other inappropriate uses. ● PMI/Malawi supported the planning, implementation, and evaluation of the first year of IRS in Nkhotakota district, covering about 118,000 structures and protecting approximately 500,000 people (October 2018)
PMI-supported planned activities (next ~12-18 months, supported by currently available funds)
● Entomological monitoring in 13 sentinel sites in 6 targeted districts ● CDC technical assistance for entomological monitoring ● Procurement and distribution of approximately 1.2 million ITNs to pregnant women and children less than one year of age through the routine distribution system ● National-level SBC activities to improve demand for ITNs and increase use and net care ● Planning, implementation, and evaluation of the second year of IRS in Nkhotakota district covering about 118,000 structures and protecting approximately 500,000 people (October/November 2019) ● Technical assistance to the NMCP and World Vision International to implement IRS in Mangochi district ● External environmental compliance inspection field visit to observe and monitor environmental compliance

1.A. ENTOMOLOGICAL MONITORING

Key Goal
Determine the geographic distribution, bionomics, and insecticide resistance profiles of the main malaria vectors in Malawi to inform vector control decision-making.

Do you propose to increase, decrease, or maintain funding allocation levels for this activity? Why, and what data did you use to arrive at that conclusion?
PMI/Malawi has decided to maintain funding allocation levels for entomological monitoring based on the approved workplan and budget from the current implementing partner. Please see Table 2 for a detailed list of proposed activities with FY 2020 funding.

Key Question 1

Where is entomological monitoring taking place, what types of activities are occurring, and what is the source of funding?

Supporting Data

Figure A1. Map of Malawi showing existing and proposed entomological surveillance sites

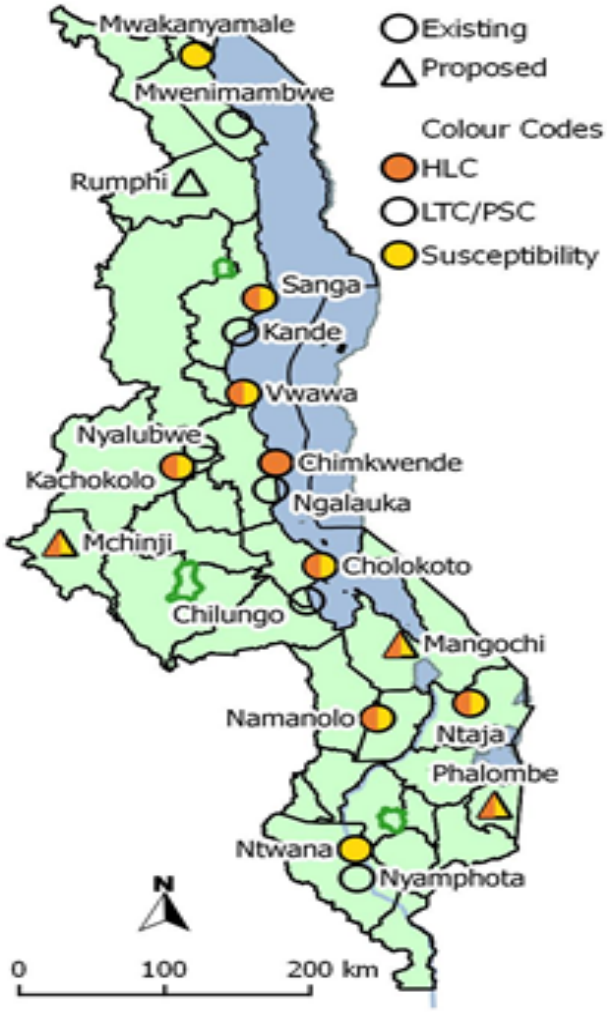


Figure A2. Activities by District

District	Sentinel sites	Activities	Supported by
Nkhotakota	Vwawa	Human landing catches (HLC), CDC miniature light trap (CDC-LTs), pyrethrum spray catches (PSC), Insecticide susceptibility	PMI
	Chimkwende	HLC, CDC-LTs, PSC	PMI
	Ngalauka	CDC-LTs, PSC	PMI
Salima	Cholokoto	HLC, CDC-LTs, PSC, Insecticide susceptibility	PMI
	Chilungo	CDC-LTs, PSC	PMI
Nkhata Bay	Sanga	HLC, CDC-LTs, PSC, Insecticide susceptibility	PMI
	Kande	CDC-LTs, PSC	PMI
Chikwawa	Ntwana	CDC-LTs, PSC, Insecticide susceptibility	PMI
	Nyamphota	CDC-LTs, PSC	PMI
Karonga	Mwakanyamale	CDC-LTs, PSC, Insecticide susceptibility	PMI
	Mwenimambwe	CDC-LTs, PSC	PMI
Kasungu[2]	Kachokolo	HLC, CDC-LTs, PSC, Insecticide susceptibility	PMI
	Nyalubwe	CDC-LTs, PSC	PMI
Mangochi[3]	TBD	HLC, CDC-LTs, PSC, Insecticide susceptibility	PMI
	TBD	CDC-LTs, PSC	PMI
Machinga[4]	Ntaja	HLC, CDC-LTs, PSC, Insecticide susceptibility	NIH
Balaka[3]	Namanolo	HLC, CDC-LTs, PSC, Insecticide susceptibility	NIH
Dedza	Dedza east	HLC, CDC-LTs	GCRF (PIIVeC)
Rumphi	TBD	TBD	TBD
Mchingj	TBD	TBD	TBD
Phalombe	TBD	TBD	TBD

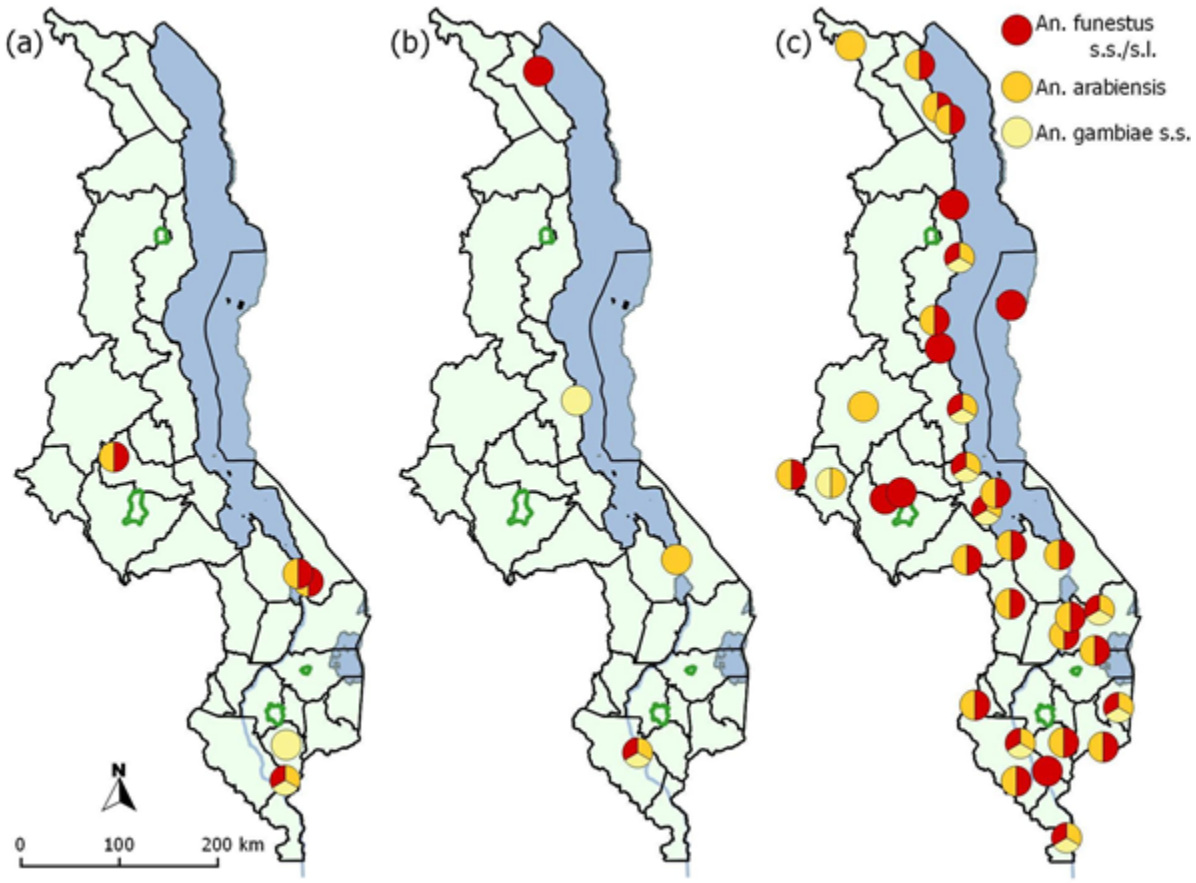
TBD: The Malawi Insecticide Resistance Management Plan calls for additional entomological monitoring sites in Rumphi, Mchinji, and Phalombe Districts. However, funds to support these activities are not currently available.

[2] New sites as of 2019

[3] New site proposed for 2019-2020. PMI will support the sites in Mangochi for one year while the NMCP will support with Global Fund money beginning in 2020.

[4] Data not yet available

Figure A3. Historical and current distribution of malaria vectors in Malawi: (a) 1990-1999; (b) 2000-2009; and (c) 2010-2017 (Source: LINK Project).



Historical studies in Malawi indicated that *An. gambiae* s.s., *An. arabiensis* and *An. funestus* were the primary vectors in most sites. However, following the scale up of ITNs throughout Malawi, the major vectors have shifted. *An. gambiae* s.s. is now rare and *An. funestus* is the primary vector in most areas, particularly those along the lakeshore and the Shire river valley. *An. arabiensis* is the more common species in specific areas, particularly away from large swampy areas and in irrigated areas such as rice growing irrigation schemes in Karonga District and along the Bwanje Valley irrigation scheme.

Transmission in Malawi is highly seasonal following the rains which begin in November/December and end in March/April. *An. arabiensis* populations peak during the rains and decline rapidly when the rains end. *An. funestus*, which breeds in larger bodies of water that persist after the rains have ended, experiences peaks later in the year and may be found in certain sites for several months following the cessation of the rains.

Two recent studies carried out in Chikwawa in the Southern region and in Nkhatabay and Karonga in the Northern region suggested that there is variation in biting behavior of *An.*

funestus s.l. and *An. arabiensis*. In Chikwawa, biting activity of *An. gambiae* s.l. (presumably *An. arabiensis*) was highest in the late evening hours (after 20:00 until before midnight), while that of *An. funestus* s.l. was highest after midnight (00:00-03:45). Furthermore, *An. arabiensis* had a propensity to preferentially bite outdoors while *An. funestus* s.l. preferred biting indoors (Mzilahowa *et al*., unpublished data). In a study carried out in 2014, it was found that *An. funestus'* peak biting time was in the early morning hours (04:00-06:00) in Nkhatabay. On the other hand, *An. arabiensis'* peak biting time was around midnight in Karonga (Mzilahowa *et al*., unpublished data).

Figure A4. Major Vectors

Site	Major Vector	Minor Vector	Peak Abundance	Preferred Biting Location	Peak Sporozoite Rate	Annual* EIR
Karonga	*An. arabiensis*	*An. funestus*	N/A	Outdoors	N/A	N/A
Nkhata Bay	*An. funestus*	*An. arabiensis*	44.0% (265)	Indoors	2.7	N/A
Nkhotakota (Chimkwemde)	*An. funestus*	*An. gambiae*	67.2% (92)	Indoors	N/A	N/A
Nkhotakota (Vwawa)	*An. funestus*	*An. arabiensis*	56.3% (103)	Indoors	1.6	N/A
Salima	*An. arabiensis*	*An. funestus*	52.0% (92)	Outdoors	6.8	N/A
Chikhwawa	*An. funestus* and *An. arabiensis*	N/A	N/A	Indoors (*An. funestus*) + Outdoors (*An. arabiensis*)		N/A

Note: Data for Preferred Resting Location and Preferred Host not available.

Conclusion

An. funestus is the primary vector in much of Malawi and in sites where *An. arabiensis* predominates, sporozoite rates are generally low. *An. funestus* is more likely to enter houses to feed and is therefore more susceptible to standard interventions such as ITNs and IRS. As Malawi scales up IRS and new types of ITNs, it is necessary to monitor local mosquito populations to assess the effectiveness of these interventions against the primary vectors and to detect potential shifts to secondary vectors that are less amenable to control due to outdoor feeding and/or resting. PMI/Malawi will continue to support entomological monitoring in 13 sites while working to develop capacity for the NMCP to manage existing as well as proposed monitoring sites.

Key Question 2

What is the current insecticide resistance profile of the primary malaria vectors?

Supporting Data

There are high levels of pyrethroid and carbamate resistance across all the sentinel sites. *Anopheles. funestus* s.s. and *An. gambiae* s.l. which are the main vectors in Malawi are resistant to pyrethroids but susceptible to pyrethroids following piperonyl-butoxide (PBO) pre-exposure.

Pirimiphos-methyl is still effective in all the study sites, therefore may still be considered for Malawi. The primary vectors are also susceptible to chlorfenapyr and clothianidin.

Figure A5. Insecticide Resistance Profile by Primary Malaria Vectors

Species	Counties/ Sites	Pirimiphos-methyl	Clothianidin	Chlorfenapyr	Deltamethrin	Deltamethrin+PBO	Permethrin	Permethrin +PBO	Alpha-cypermethrin	Alpha-Cypermethrin +PBO
An. funestus	Chikwawa	100	100	100	20.2	97.1	17.7	94.6	9.5	100
	Nkhata Bay	100	100	100	5.7	100	28.2	100	12.9	90.4
An. arabiensis	Karonga	100	100	100	95.7	100	9.3	100	99	--

Additional sites are in Nkhotakota and Salima Districts. However, data are not yet available due to low mosquito numbers from these sites. Resistance data are expected from Nkhotakota in late September or early October as mosquito populations recover as the effect of IRS wanes. However, low numbers continue in Salima District which received PBO nets. Additional efforts will be made during the rainy season of 2020 to collect resistance data in Salima District.

Conclusion

The Government of Malawi should consider switching from standard ITNs to PBO and/or dual insecticide nets. Current data indicates that all available WHO pre-qualified PBO nets are likely to be effective in Malawi. Malaria vectors in Malawi are resistant to pyrethroid and carbamate insecticides and DDT is not registered for use in Malawi. However, full susceptibility was observed to pirimiphos-methyl and clothianidin. These two insecticides may be considered for use in IRS in Malawi.

Key Question 3

What are the in-country considerations that impact your funding allocation in this category?

Supporting Data

Currently, there are no entomologists at the Malawi NMCP and only one insectary located in the Southern Region of the country. Partners with entomological capabilities are largely research institutions that maintain field sites which are geographically limited and designed to address specific research questions rather than routine longitudinal monitoring.

Conclusion

The Malawi NMCP currently does not have the capacity to conduct entomological surveillance in Malawi, therefore the government is heavily dependent on PMI to support entomologic activities. There is a short-term need to continue to provide sustained levels of support, while also developing a longer term plan to build entomological capacity within NMCP (ideally with a dedicated entomologist), establish a second insectary in country, develop a curriculum and cadre of trained entomologists, and train volunteers in select communities to perform basic entomological work (e.g. collection and morphological identification of mosquitoes).

1.B. INSECTICIDE-TREATED NETS (ITNs)

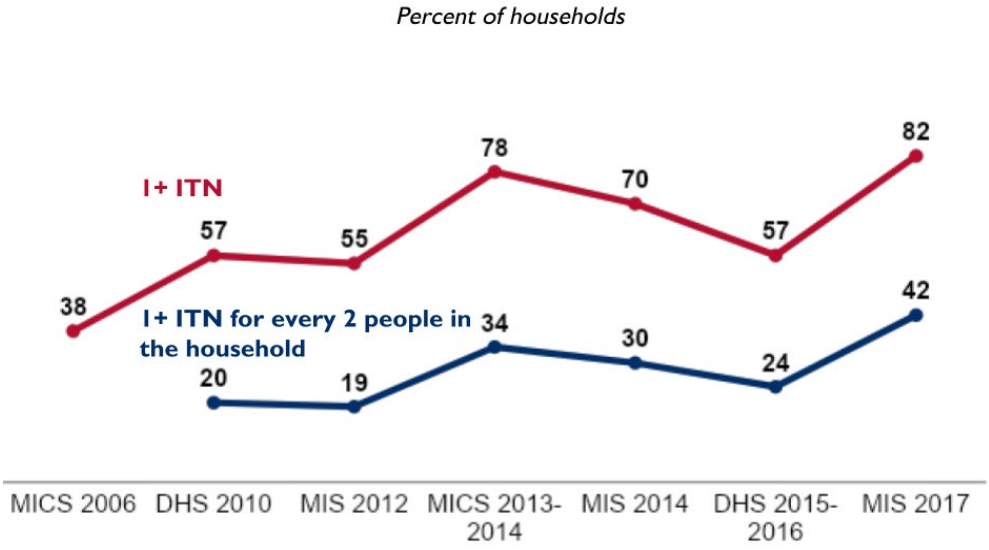
PMI Goal
Achieve high ITN coverage and usage of effective nets in endemic PMI-supported areas (in the context of the current insecticide resistance); and maintain high coverage and use with consistent ITN distribution (via campaigns and/or continuous channels in a combination that is most effective given country context).
Are you proposing to increase, decrease, or maintain funding allocation levels for ITN distribution and SBC activities? Why? What data did you use to arrive at that conclusion?
PMI/Malawi is proposing to increase the funding allocation level for ITNs in order to procure PBO ITNs for routine distribution to complement the new types of nets planned for distribution via the 2021 mass campaign. Given that the current unit price for PBOs is higher than for standard pyrethroid nets previously procured, the planning figure is higher than the amount allocated for ITN procurement in previous MOPs. The distribution figure will remain the same, as per the implementing partner budget. Please see Table 2 for a detailed list of proposed activities with FY 2020 funding.

Key Question 1

How has net ownership evolved since the start of PMI in the country? Are households fully covered?

Supporting Data

Figure A6. Trends in ITN Ownership



Conclusion

Malawi has made significant efforts to increase the number of households with at least one ITN, and achieved 82% in 2017 (prior to the 2018 mass campaign). However, universal coverage of ITNs (one net for two people) was still low, at 42% in the 2017 MIS, though this figure could have increased following the 2017-2019 LLIN mass campaign. Thus, there is a need to continue strengthening continuous distribution channels to maintain high ITN coverage between mass campaigns.

Key Question 2

What proportion of the population has access to an ITN? In contrast, what proportion of the population reports using an ITN? What is the ratio between access and use? Does it vary geographically?

Supporting Data

Figure A7. Trends in ITN Access and Use

Percent of household population with access to an ITN and who slept under an ITN the night before the survey

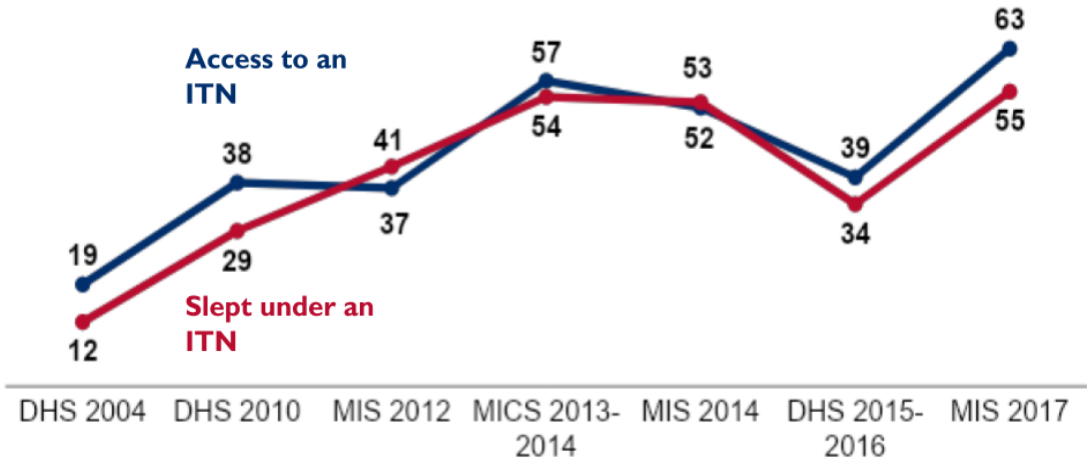
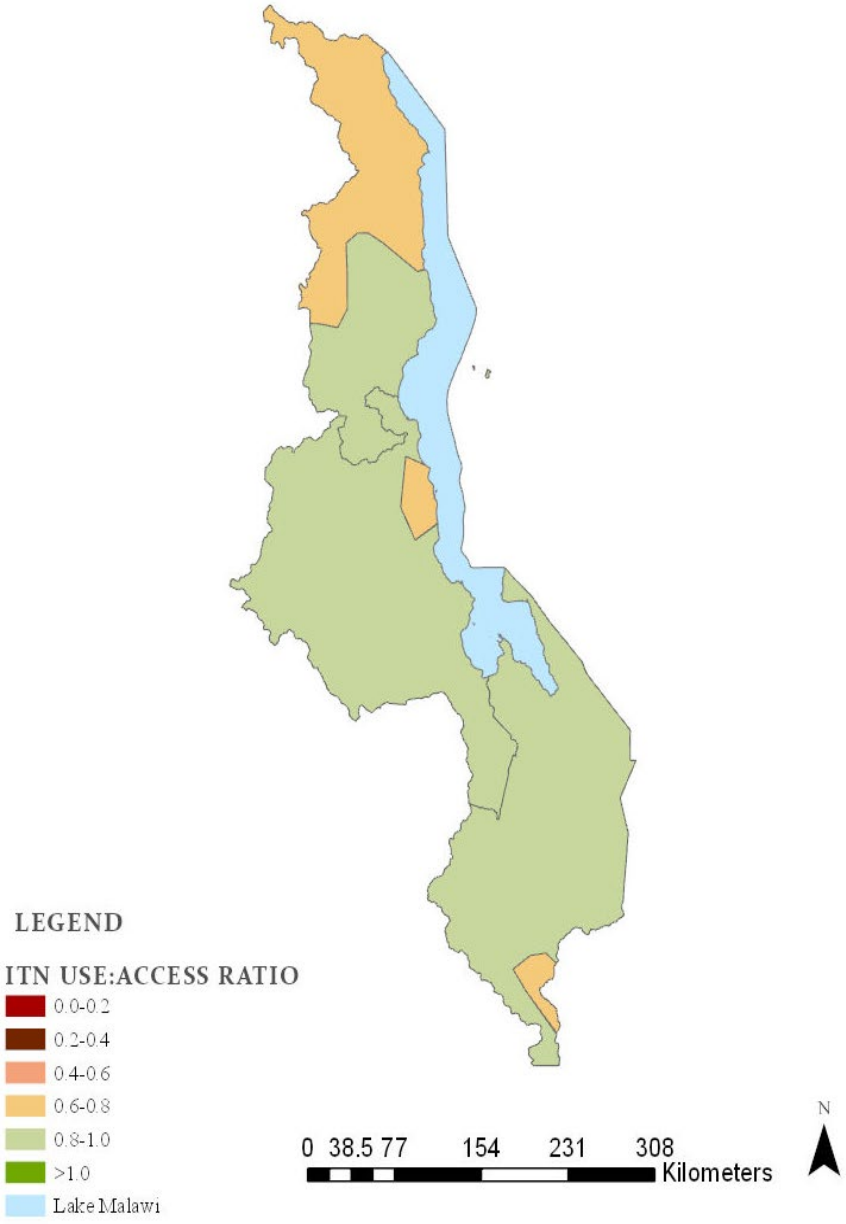


Figure A8. Malawi ITN Use: Access Ratio, from MIS 2017



Conclusion

Trends across national household surveys indicate Malawi continues to have an ITN use to access ratio of at least 0.80 across all regions and groups.[5] SBC activities should therefore emphasize maintaining net use and promoting net care as access improves[6].

[5] While the map above displays some sub-regional areas with ratios below 0.80, the MIS was not powered to undertake analyses below the regional level. Of the areas shown with lower ratios, only Nkhotokota is supported by PMI, whereas 90% of all supported districts have >0.80 use: access ratios.

[6] The ITN Access and Use Report suggests a decrease in net use in the dry season. Our integrated SBC mechanism is currently analyzing data from several rounds of participatory action media to inform designing SBC interventions to address seasonal issue of nets. The analysis is based on what motivates people to use net so that the messages will be tailor-made to promote the use of nets every night throughout the year.

Key Question 3

In areas where ITN access is high but use is low, what is known about the key barriers and facilitators to use?

Supporting Data

Figure A9. Key Barriers and Facilitators to ITN Use

Facilitator	**Type of Factor** *(Internal, Social, or Environmental)*	**Data Source**	**Evidence**
High levels of knowledge about ITNs	Internal - Knowledge	2017 MIS	Among women 15-49 years of age, 87% reported mosquito nets as a method for malaria prevention.
Previous experience with severe malaria in household or community	Internal - Risk Perception	HC4L Program Data (Nkhotakota and Balaka)	Data from participatory action media indicate high risk perception due to previous experience with severe malaria in the household, among friends, or in the neighborhood.
Barrier	**Type of Factor** *(Internal, Social, or Environmental)*	**Data Source**	**Evidence**
Beliefs that ITNs do not keep mosquitoes or other problem insects away	Internal	HC4L Program Data (Nkhotakota and Balaka)	Data from participatory action media indicate that community members believe that ITNs bring bed bugs and other nuisance insects. Therefore, community members do not wish to use them.
Beliefs that ITNs inconvenience couples during sex	Social	HC4L Program Data (Nkhotakota and Balaka)	Data from participatory action media indicate that community members believe ITNs make it difficult for couples to engage in sexual activities.
Missed opportunities at the facility to emphasize ITN use	Environmental	HC4L Program Data	Audience feedback through field visits and community theatre group performances indicate there are missed opportunities for community members to receive counseling on net use during health facility visits for ANC and labor and delivery due to poor counseling or lack of time by providers.

Conclusion

Knowledge about the benefits of sleeping under an ITN are high across women of childbearing age. Similarly, experience with a severe case of malaria has been shown to facilitate ITN use as it influences risk perception. While some data exists for barriers and facilitators to ITN use, more information is needed to fully assess internal and social factors at the community level and the role that providers may play in service communication to promote continued net use. Malawi will implement the Malaria Behavior Survey in CY 2020 and ideational factors will be explored further. Data gathered will be used to help further inform the key behavioral factors for which PMI investments should focus. In the interim, PMI activities should emphasize maintaining net use and promoting net care as access improves while addressing internal and social norms (e.g., perceptions that ITNs do not keep mosquitoes or other problem insects away and beliefs that ITNs inconvenience couples during sex).

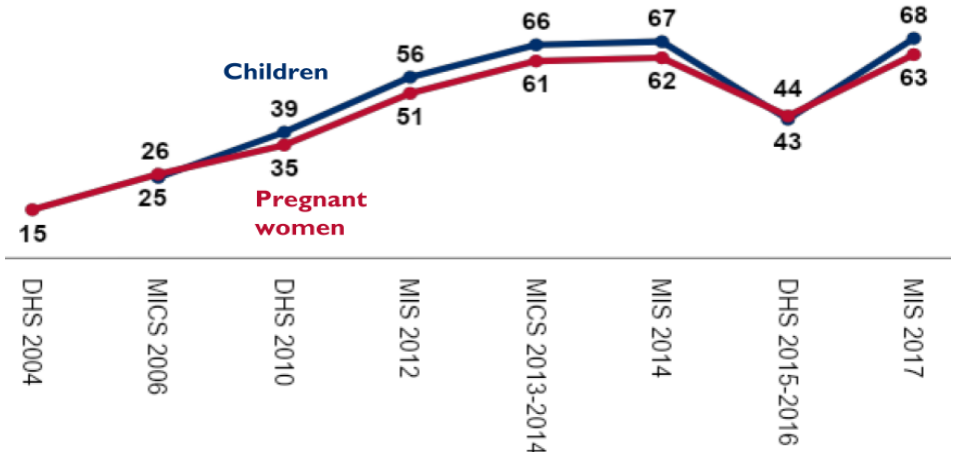
Key Question 4

What percentage of pregnant women and children under 5 report sleeping under an ITN?

Supporting Data

Figure A10. Trends in ITN Use among Children and Pregnant Women

Percent of children under 5 and pregnant women age 15-49 who slept under an ITN the night before the survey



Conclusion

In addition to the graph above, it should be noted that 63% of the household population has access to an ITN, and in households owning at least one ITN, 79% of children under five years of age and 73% of pregnant women slept under an ITN the previous night (MIS 2017). Therefore, when there is a net available, most women and children sleep under it and there is a culture of net use in Malawi as indicated by the ITN access: use ratio. Thus, continued efforts in programming to ensure as close to 100% coverage should be made to provide enough nets to

protect the inhabitants in each household. Additionally, programming efforts will seek to maintain the high levels of net use (with access) and shift SBC efforts to prioritize net care and repair, as applicable.

Key Question 5

What channels are used to distribute ITNs?

Supporting Data

Figure A11. ITN Distribution Channels FY 2015 – FY 2018

Channel	FY 2015	FY2016	FY2017	FY2018
Routine (ANC and live birth)	1,213,721	936,337	1,040,098	1,135,670
Mass Campaign	1,058,968	8,661,990		10,788,947
Emergency Distribution (floods)	63,440	N/A	N/A	108,250

Conclusion

PMI and Global Fund continue to provide ITNs through mass campaigns and routine channels. Given the potential need to increase the provision of nets via continuous distribution between campaigns, and the increasing malaria incidence among youth over-five years of age, the NMCP and partners may consider an additional channel, either community-based via the health surveillance assistants (HSAs) or school-based, should funding be available. Should these additional channels be added for continuous ITN distribution, SBC activities will focus on uptake of continuous ITN use in areas where access is low and promote net care and repair in those areas where ITN use is high.

Key Question 6

What is the estimated need for ITNs over the next three calendar years? What volume of ITNs are available from partners and the public sector for the next three calendar years?

Supporting Data

A12. Gap Analysis Table for ITNs

Calendar Year	2019	2020	2021
Total Targeted Population	18,073,098	18,597,218	19,136,537
Continuous Distribution Needs			
Channel #1: ANC[1]	592,798	609,989	627,678
Channel #2: EPI [2]	592,798	609,989	627,678
Estimated Total Need for Continuous Channels	1,185,595	1,219,977	1,255,357
Mass Campaign Distribution Needs			
2019/2020/2021 mass distribution campaign(s)[3]			11,162,980

Calendar Year	2019	2020	2021
Estimated Total Need for Campaigns	0	0	11,162,980
Total ITN Need: Routine and Campaign	**1,185,595**	**1,219,977**	**12,418,337**
Partner Contributions			
ITNs carried over from previous year	*566,260*	*780,665*	*1,060,687*
ITNs from MOH			
ITNs from Global Fund			
ITNs from other donors			
ITNs planned with PMI funding [4,5]	1,400,000	1,500,000	
Total ITNs Available	1,966,260	2,280,665	1,060,687
Total ITN Surplus (Gap)	780,665	1,060,687	-11,357,649

Footnotes: Add any additional explanations/footnotes in this section to clearly explain the entries in your table. Remember to explain how numbers are derived and specify data sources. Please draw from a validated national malaria quantification if it exists for your country.

1) Expected population that is pregnant: 3.28% (2018 Malawi National Population and Housing Census)

2) Assumes every pregnant woman will deliver one child

3) 2021: includes 5% buffer as previously negotiated by NMCP

4) 2019: including 300,000 ITNs from MOP FY17 procurement delivered in January 2019. 200,000 emergency ITNs procured and delivered.

5) 2020: 300,000 ITNs from MOP FY18 procurement to be delivered in January 2020. And 1.2 million planned in MOP19.

Conclusion

PMI and Global Fund anticipate covering Malawi's need for ITNs through routine distribution and mass campaigns.

Key Question 7

What is the current status of durability monitoring?

Supporting Data

Figure A12. Durability Monitoring at 12-, 24-, and 36-Month

Campaign Date	Sites	Brands	Baseline	12-month	24-month	36-month
April – May 2016	Kasungu	Yorkool	X	X	X	X
April – May 2016	Mangochi	Royal Sentry	X	X	X	X

Figure A13. Key Results of Durability Monitoring

Site	Survey and Time Since Distribution (months)	% of Cohort Nets Discarded Due to Wear and Tear	% Cohort Nets Surviving in Serviceable Condition	% Nets Used the Previous Night		Results & Minimal Insecticidal Effectiveness in Bioassay	
				Cohort	Other	KD / Mortality	Optimal/ Minimal
Kasungu (Yorkool)	12m:	7.9	85.2	81.7	NA	93.1 / 82.5	73. 3/ 96.7
	24m:	15.6	62.9	81.8	68.6	92.8 / 80.5	72.4/93.1
	36m:	25.2	26.7	62.3	64.1	84.2 / 67.0	68.0 / 76.0
Mangochi (Royal Sentry)	12m:	4.3	83.0	76.3	NA	99.4 / 97.9	96.7/100
	24m:	10.6	47.1	83.9	81.3	95.6 / 91.8	96.2/96.3
	36m:	25.5	9.9	77.3	76.0	96.2 / 84.2	95.5/95.5

Conclusion

There was a very high loss of nets, primarily due to factors other than wear and tear at 12 and 24 months. However, the proportion of nets discarded due to wear and tear increased substantially at 36 months, particularly for the Royal Sentry nets in Mangochi district. Similarly, the proportion of nets that were observed to be in good condition declined substantially after 36 months. In terms of bio efficacy, the Royal Sentry maintained high levels of biological activity against a susceptible strain of *An. gambiae* through 36 months. In contrast, bio efficacy of the Yorkool in Kasungu was lower throughout the period of follow up and by 36 months, <80% of the nets met the criteria for minimal bio efficacy.

Key Question 8

What are the in-country considerations that impact your funding allocation in this category?

Supporting Data

In the face of insecticide resistance and in the context of the new IRM plan, Malawi plans to introduce new types of ITNs (i.e., PBOs and G2s), which come at an increased cost. While the NMCP policy is to distribute ITNs during EPI visits, this is not actually occurring. This gap may be worth addressing to strengthen continuous distribution efforts.

Conclusion

The Government of Malawi and partners will need to determine the most effective use of resources to provide protection against malaria given the relative costs of the vector control interventions, and the implications of deployment of new types of nets on IRS.

1.C. INDOOR RESIDUAL SPRAYING (IRS)

Key Goal
Ensure high spray coverage, with an appropriate insecticide, in targeted endemic PMI-supported areas.

Do you propose to increase, decrease, or maintain funding allocation levels for this activity? Why, and what data did you use to arrive at that conclusion?
PMI/Malawi plans to maintain funding levels for IRS as of the writing of this MOP due to the cost of implementing IRS campaigns and the straight-lined planning levels for PMI/Malawi. The Government of Malawi and other stakeholders such as the Global Fund, have requested that PMI increase support for IRS in order to expand coverage to multiple districts. PMI/Malawi is currently meeting with other donors in-country to garner additional support for IRS to complement U.S. Government funds. Please see Table 2 for a detailed list of proposed activities with FY 2020 funding.

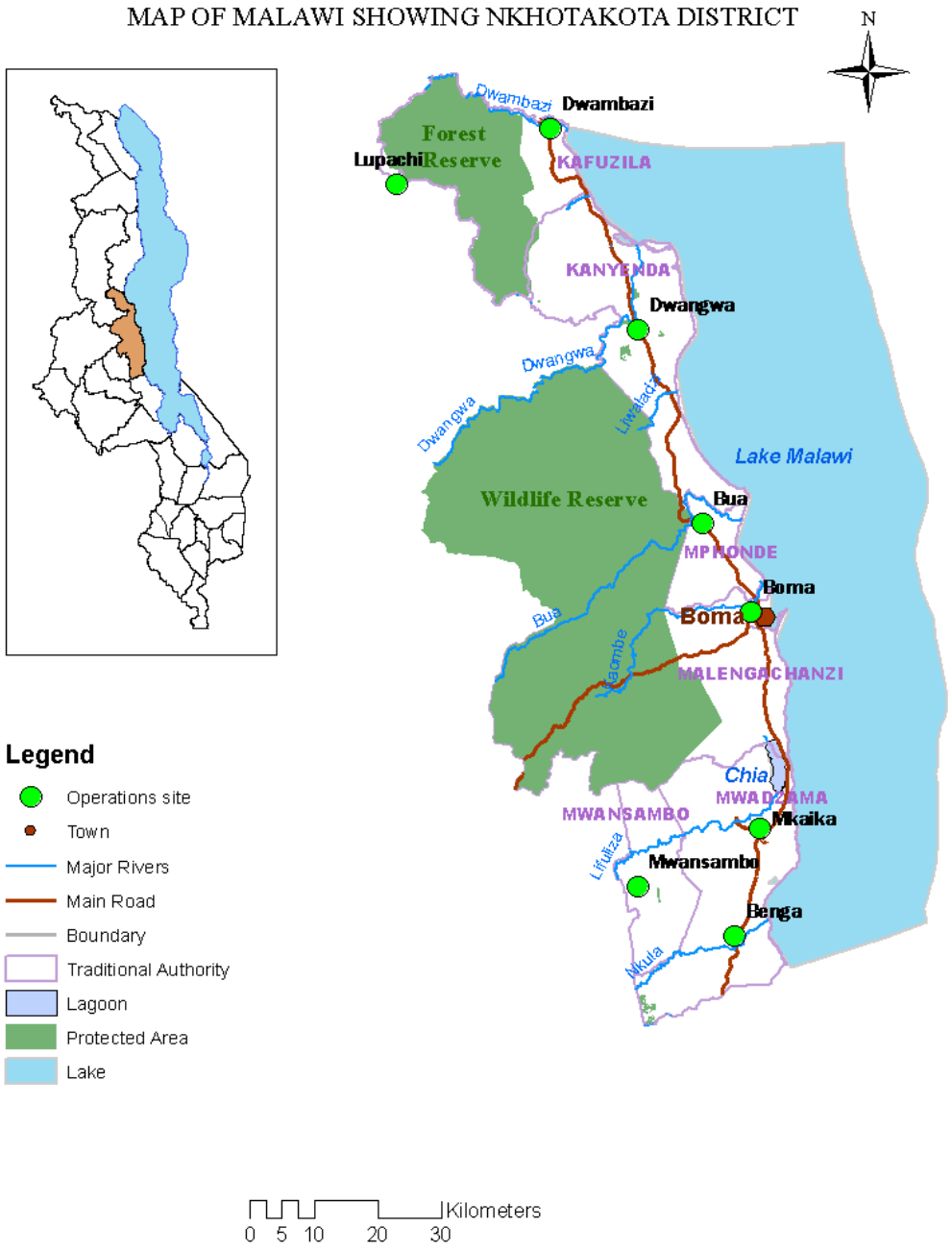
Key Question 1

What areas are targeted for IRS and why?

Supporting Data

In 2018, PMI implemented blanket IRS in Nkhotakota District. This district was selected because it was on the NMCP's list of IRS-targeted districts, the high malaria burden in the district, the presence of entomological monitoring sites, and previous experience in IRS implementation. IRS was last carried out in Malawi with PMI support in 2012. In addition to PMI's spray campaign in Nkhotakota District in 2018, several small scale IRS operations were conducted by private companies and mission hospitals. In 2019, PMI will again support IRS implementation in Nkhotakota District. In addition, the Global Fund will provide funding for a spray campaign co-led by the NMCP and World Vision International in Mangochi District. Community mobilization effort was also be supported as part of this activity.

Figure A14. IRS Target Areas



Conclusion

Malaria incidence declined substantially from 86% in the lean malaria season to 31% in the peak season (HMIS) in Nkhotakota District following IRS in late 2018 despite the high baseline incidence of malaria. PMI plans to continue to support IRS in Nkhotakota until alternative vector control tools can be scaled up.

Key Question 2

In PMI-supported areas, what spray coverage rates have been achieved in the past 5 years?

Supporting Data

Figure A15. Coverage Rates in PMI-Supported Areas 2016 - 2020

Calendar Year	Number of Districts Sprayed	District Names	Number of Structures Sprayed	Coverage Rate	Population Protected
2016	n/a	n/a	n/a	n/a	n/a
2017	n/a	n/a	n/a	n/a	n/a
2018	1	Nkhotakota	112,264	94.9%	501,324
2019*	1	Nkhotakota	~118,000	85%+	~500,000
2020*	1	Nkhotakota	~118,000	85%+	~500,000

*Denotes Targets

Conclusion

PMI-supported IRS achieved high coverage in Nkhotakota District. This district did not receive ITNs in the last mass campaign due to a gap in nets. Therefore, it is essential to continue IRS in Nkhotakota until alternative vector control tools can be scaled up.

Key Question 3

What is the residual efficacy of the insecticides used for IRS in PMI-supported areas?

Supporting Data

PMI/Malawi sprayed pirimiphos-methyl in 2018, which had a residual life - based on WHO cone tests - of approximately two to three months. Despite the unusually short residual life in the sites tested, entomological and epidemiological data suggest that the PMI-funded spray campaign still had a strong impact on both the vector and human cases.

Conclusion

Despite the short residual life of pirimiphos-methyl, entomological and epidemiological data suggest a strong impact of IRS that extended for six to eight months. Nonetheless, PMI/Malawi is planning a pilot implementation with clothianidin in 2019.

Key Question 4

What is the plan for insecticide rotation? What insecticide will be used next in PMI-supported areas?

Supporting Data

Figure A16. Insecticide Rotational Plan by Year

Year	Nkhotakota District
2017	n/a
2018	pirimiphos-methyl CS
2019	pirimiphos-methyl CS & clothianidin
2020*	clothianidin

*Denotes planned insecticide classes

Insecticide susceptibility testing conducted in 2019 indicated that *An. funestus* s.s. was fully susceptible to clothianidin, pirimiphos-methyl, and chlorfenapyr in Chikwawa and Nkhata Bay districts and *An. gambiae* s.l. was fully susceptible to clothianidin, pirimiphos-methyl, and chlorfenapyr in Karonga district. Therefore, there is full susceptibility to both insecticides proposed to be used in 2020. Chlorfenapyr is not currently recommended by WHO, however, it is under review by WHO pre-qualification.

Conclusion

The primary malaria vectors in Malawi are fully susceptible to pirimiphos-methyl and clothianidin. Therefore, PMI/Malawi will continue to support IRS with these insecticides including pilot implementation of clothianidin in two operational sites in Nkhotakota in 2019. In 2020, PMI/Malawi will support full-coverage of Nkhotakota with clothianidin as indicated in the Malawi Insecticide Resistance Management Plan (2019-2022) which calls for annual rotation of organophosphate and neonicotinoid insecticides in districts targeted for IRS.

Key Question 5

Are any PMI-supported areas considering withdrawing IRS? If so, what programs are in place to cover anticipated increases in malaria cases and promote consistent net use and care-seeking behaviors?

Supporting Data

N/A

Conclusion

N/A

Key Question 6

What are the in-country considerations that impact your funding allocation in this category?

Supporting Data

The Global Fund has committed to continue supporting IRS in one district for CY 2019, 2020, and 2021. Malawi is due to submit the next Global Fund grant application in March 2020 which will include continued support for IRS. With Global Fund support, the country plans to distribute PBO and G2 ITNs in the 2021 ITN mass campaign. For now, PMI (and Global Fund) plan to implement IRS in a district where G2s and PBOs are *not* being distributed.

Conclusion

PMI/Malawi plans to support Malawi with IRS until such a time when an alternative high impact vector control intervention is available. PMI/Malawi will continue collaborating with the Global Fund on expanding IRS coverage in Malawi.

2. HUMAN HEALTH

2.A CASE MANAGEMENT in health facilities and communities

NMCP objective
Increase capacity to ensure prompt and effective case management and reduce the presumptive use of antimalarial medications. To achieve this increased capacity, the MOH is focusing its efforts in the following areas: ● Ensuring consistent availability of high-quality diagnostic and treatment commodities through proper quantification, procurement, and distribution ● Strengthening quality assurance for malaria diagnostics ● Training and supervising health workers on malaria case management at all levels of the health system ● Supporting and expanding community case management in hard-to-reach areas (i.e., community level)
NMCP approach
The most current version of the NMCP's *Guidelines for the Treatment of Malaria in Malawi* were written in 2013. The Malawi *Guidelines* recommend testing all suspected malaria cases using an RDT prior to initiating treatment. Microscopy is recommended for the following purposes: 1) to confirm malaria diagnosis in hospitalized patients with suspected severe malaria; 2) to monitor treatment progress in severe malaria cases receiving parenteral treatment; and 3) to confirm first-

line treatment failures; approximately 30% of health facilities have the capacity to provide malaria microscopy by trained and qualified laboratory staff. Artemether-lumefantrine (AL), locally known as LA, is recommended as the first-line treatment and artesunate-amodiaquine (ASAQ) is the second-line treatment. Oral quinine plus clindamycin is recommended for the treatment of uncomplicated malaria in pregnant women in the first trimester. For the management of patients with severe malaria, parenteral artesunate is recommended as the definitive treatment and as pre-referral treatment in health centers while rectal artesunate is a recommended pre-referral treatment for suspected severe malaria cases in children under five years of age at the community level.

Because the existing Malawi *Guidelines* are not up to date with the WHO *Guidelines for the Treatment of Malaria, Third Edition (2015)*, health workers are using the WHO *Guidelines* at the health facility and in community case management. The key differences between the Malawi *Guidelines (2013)* and the WHO *Guidelines (2015)* include: treating infants weighing less than 5 kgs with uncomplicated *P. falciparum* malaria with an ACT at the same mg/kg body weight target dose as for children weighing 5 kgs or more, and treating children weighing less than 20 kg with suspected severe malaria with a higher dose of injectable artesunate (3 mg/kg) than larger children and adults (2.4 mg/kg).

The NMCP and partners, including PMI, are currently updating the existing Malawi *Guidelines (2013)*. The NMCP is coordinating revisions to account for updates from the WHO *Guidelines for the Treatment of Malaria, Third Edition (2015)*. The NMCP also is coordinating with WHO to include any additional revised guidance planned in the anticipated release of the WHO *Guidelines for the Treatment of Malaria, Fourth Edition (TBD).* There is currently no timeline for the NMCP guidelines to be released.

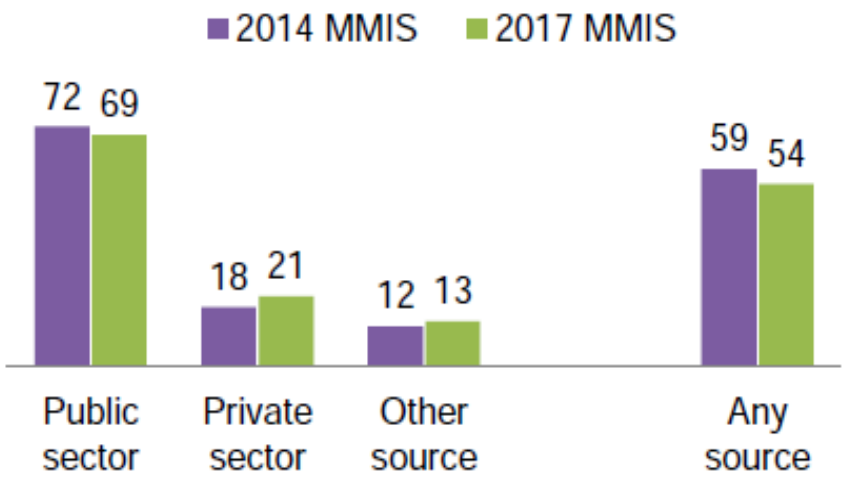
The NMCP's approach to quality assurance (QA) of diagnostic testing includes the provision of guidelines and job aids, outreach training and supportive supervision (OTSS), and lessons learned workshops. The OTSS activities are the core of the QA approach. The OTSS intervention provides on-site training and long-term, ongoing support to strengthen diagnostic and treatment services in health facilities. During scheduled visits, supervisors identify areas for improvement and provide immediate feedback to laboratory and clinical staff. Currently, OTSS occurs at all health facilities in Malawi. In general, facilities receive quarterly visits at enrollment and then two per year after minimum compliance standards are met.

Malawi has an existing CHW program of Health Surveillance Assistants (HSAs) which is intended to serve communities more than five km from a health facility; as of 2018, there were 9,907 HSAs in the country. The Government of Malawi intends to reach a target of 1 HSA per 1,000 population by 2022. As of 2018, the ratio was 1 HSA per 1,634 population and this is still an insufficient amount of HSAs to meet health needs. HSAs perform a variety of activities, including iCCM, involving RDT testing and treatment with ACTs for children under five years of age as well as

administration of rectal artesunate as per referral treatment of severe malaria at community level. Approximately 54% of HSAs are trained in iCCM. HSAs receive a stipend of approximately USD$150 per month.

According to the 2017 MIS, 21% of patients with fever seek treatment in the private sector. The national policy allows testing and treatment to occur in the private sector; AL is the first line treatment with ASAQ as a second line option. Dihydroartemisinin-piperaquine (DHA/PPQ) is registered in Malawi and is estimated to comprise ~5-10% of treatments in the private sector.

Figure A17. Percentage of Patients with Fever Who Seek Treatment



- Currently, Malawi has about 9,000 facility-based health workers trained in malaria case management. The NMCP recommends refresher training for these health workers once every two years.
- The country has 9,907 HSAs and requires an additional 7,657 HSAs to cover the current population at a ratio of 1 HSA per 1,000 population. Of the 9,907 HSAs only 54% are trained in iCCM.

PMI objective, in support of NMCP

- PMI/Malawi supports approximately half of the commodities for management of uncomplicated malaria (RDTs, ACTs), with the remainder of the commodities supported by Global Fund. PMI/Malawi does not procure commodities for management of severe malaria, as these are contributed by Global Fund.
- PMI/Malawi supports the strengthening of diagnostic and case management activities through the OTSS program in support of the NMCP Case Management Strategy in 10 focus districts (Figure 7).
- PMI/Malawi supports supervision of HSAs in the use of RDTs, adherence to RDT results, appropriate use of ACTs, and pre-referral use of rectal artesunate.

- The NMCP MSP includes support for National Archives for Malaria Slides which PMI has not supported in recent years.

PMI-supported recent progress (past ~12-18 months)

- PMI/Malawi worked closely with the NMCP and the Global Fund to coordinate procurement and delivery schedules to ensure that appropriate central stock levels of antimalarials and RDTs were maintained. In the past year, PMI/Malawi procured approximately 4 million RDTs and 2 million ACTs. PMI worked with the NMCP and the Case Management Technical Working Group on the new *Guidelines for the Treatment of Malaria in Malawi*, which are still being revised.
- PMI/Malawi continued to support the strengthening of case management activities through the OTSS program. The approach included targeted supportive supervision, mentoring, cluster-based data reviews and on-the-job coaching. Under the new case management activity, OTSS rounds 3 (July-August 2018) and 4 (July-August 2019) were conducted in 201 and 178 health facilities (281 health workers supervised and trained in 2019), respectively. Additionally, PMI/Malawi provided support to facility case reviews with 42 health workers (27 M, 15 F) to improve the quality of care to admitted severe malaria cases. To better use malaria data at district, facility, and community levels to improve case management activities, PMI/Malawi also supported malaria specific cluster-based review meetings in all 10 focus districts interacting with 320 (229 M, 91 F) key workers (data clerks, staff conducting mRDTs, clinicians, nurses, and pharmacists) total.
- Data from OTSS Round 4 demonstrated continued improvement in key case management focus areas including the use of diagnostic test prior to treatment and adherence to diagnostic test results. Please see two corresponding bar charts below; please note that "R" and subsequent number refer to the OTSS rounds: R1-December 2017, R2-April 2018, R3-July/August 2018, and R4-July/August 2019.

Figure A18. Testing Prior to Treatment

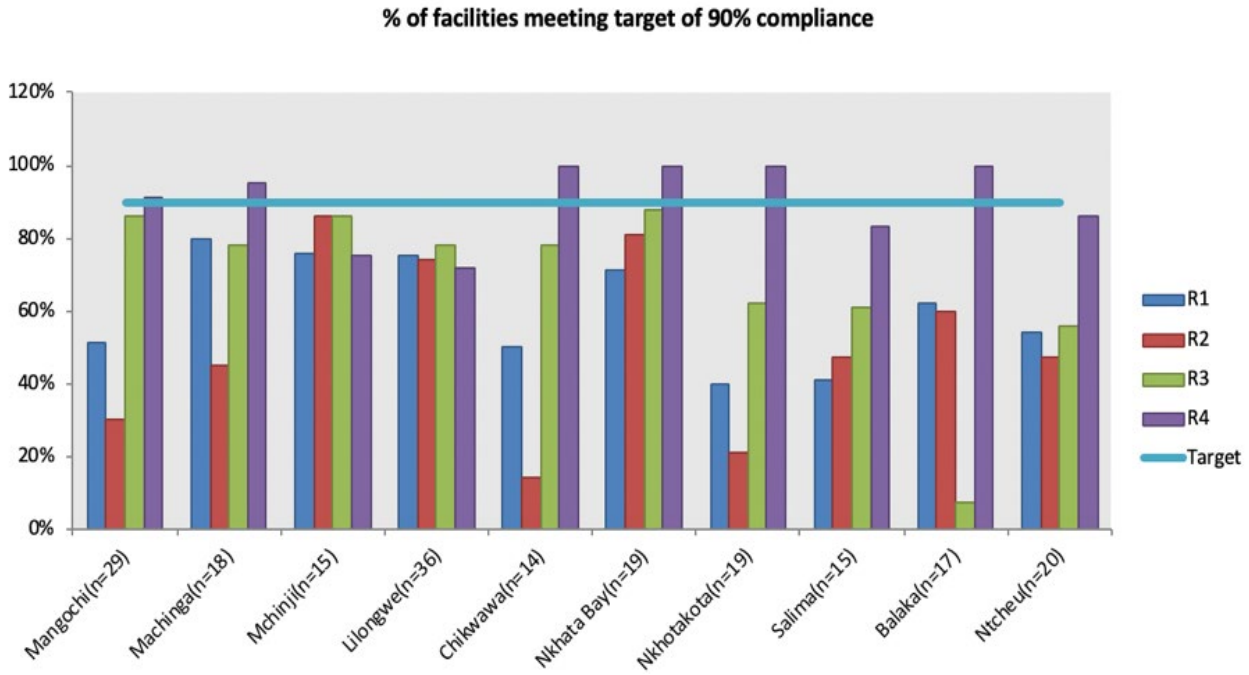
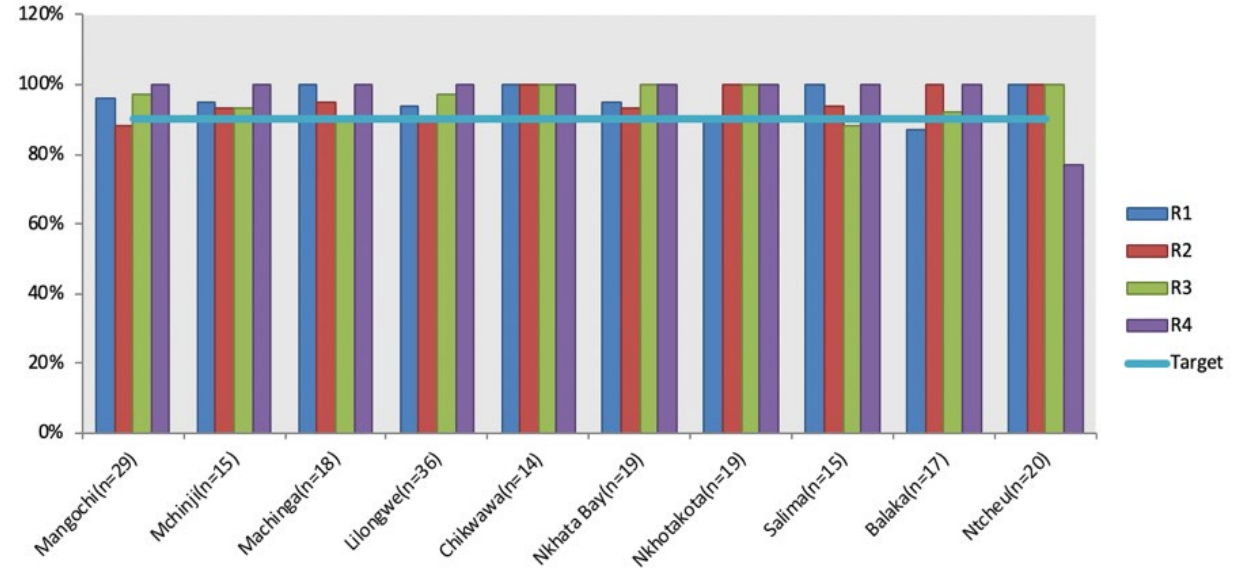


Figure A19. Adherence to Negative Test Results



PMI-supported planned activities (next ~12-18 months, supported by currently available funds)

- PMI/Malawi plans to procure approximately 5 million RDTs and ancillary diagnostic supplies (gloves and sharps containers) for RDT implementation, and approximately 3 million courses of AL.
- PMI/Malawi plans to support case management services in selected focus districts (yet to be determined), concentrating on recognition and appropriate diagnostic testing of suspected malaria cases, adherence to diagnostic test results, quality improvement for diagnostics, appropriate use of severe malaria treatments, and supervision and mentorship in facility and community settings, with approximately 80% effort to facility settings and 20% effort to the community level.
- PMI/Malawi is planning to support activities aimed at addressing the substantial vacancies among HSAs in order to accelerate progress toward the goal of 1 HSA to 1,000 population. These activities include: technical assistance to District Councils to develop local policy documents on recruitment, training, and retention of District staff including the Community Health Team; and creation and strengthening of quarterly district-level health partner coordination meetings to plan, discuss, and review community health priorities, performance metrics, and financial plans.

PMI Goal

Improve access to and utilization of timely, quality, and well-documented malaria testing and treatment by providing facility- and community-based health workers with training, supervision, and malaria commodities to be able to provide high quality, effective care.

Do you propose to increase, decrease, or maintain funding allocation levels for this activity? Why, and what data did you use to arrive at that conclusion?

PMI/Malawi decided to maintain funding for case management related activities. PMI/Malawi currently supports implementation of case management activities through several USAID projects, all of which are coming to a close in 2020/2021. PMI/Malawi will further refine case management activities in the FY 2020 MOP to better align with final decisions related to USAID/Malawi project designs and the USAID/Malawi CDCS.

Please see Table 2 for a detailed list of proposed activities with FY 2020 funding.

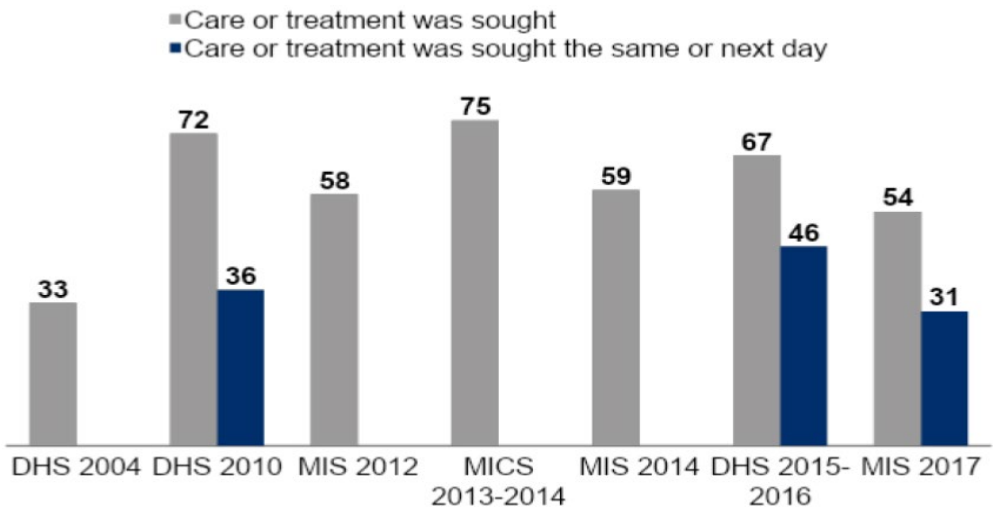
Key Question 1

What is the status of care-seeking?

Supporting Data

Figur A20. Trends in Care-Seeing for Fever

Among children under 5 with fever in the 2 weeks before the survey for whom:



*Exclused treatment or advice from a traditional practitioner.

Conclusion

Care-seeking/prompt care-seeking remain at moderate levels and are relatively stable over the past decade in Malawi. To further identify individual, social, and environmental factors that affect care-seeking, PMI/Malawi will be conducting the Malaria Behavior Survey in CY 2020. See Key Question 2 below for additional details.

Key Question 2

What is known about the major barriers and facilitators to care-seeking?

Supporting Data

Figure A20. Facilitators and Barriers to Care-Seeking

Facilitator	Type of Factor	Data Source	Evidence
Fever recognized as a symptom of malaria	Internal - Knowledge	2017 MIS	71% of women aged 15-49 recognized fever as a symptom of malaria.
Previous experience with severe malaria in household or community	Internal - Risk Perception	HC4L Program Data (Nkhotakota and Balaka) - Participatory Action Media	Data indicated high risk perception due to previous experience with severe malaria in households, among friends, or in the neighborhood.

Barrier	Type of Factor	Data Source	Evidence
Low risk perception of malaria/fever in the early stages	Internal - Risk Perception	HC4L Program Data (Nkhotakota and Balaka) - Participatory Action Media; 2017 MIS	Data indicated people only consider taking their children or taking themselves to the health center when they are very sick. According to the 2017 MIS, 31% of caregivers sought care for fever within 24 hours.
Culture of self-diagnosis and self-treatment	Social - Norms	HC4L Program Data	Data indicate a culture of self-diagnosis and self-treatment in some areas of the country. Self-treatment consists of local herbs or locally bought medicines as the first response.

Conclusion

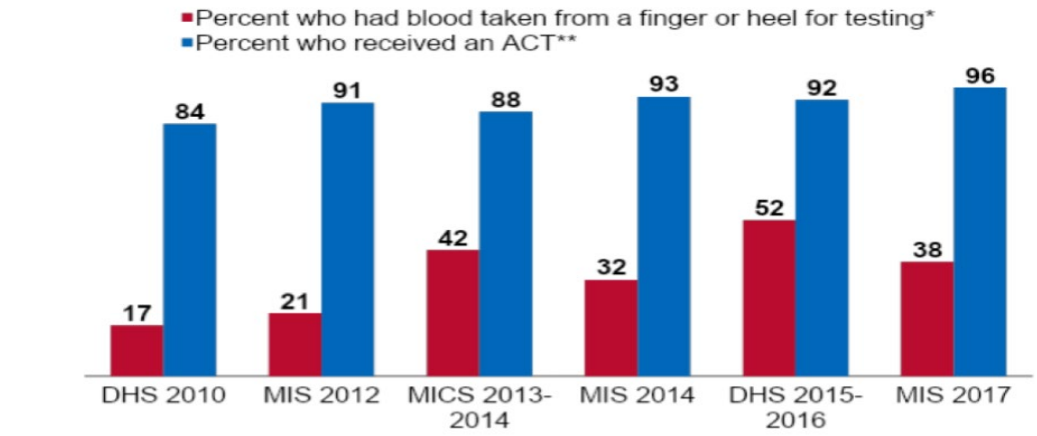
Knowledge of malaria symptoms has remained relatively high across household survey data; however, high knowledge of fever as a symptom of malaria has not translated to prompt care-seeking. There is also little evidence of the specific behavioral factors that are influencing prompt care-seeking (e.g., self-efficacy, attitudes, response efficacy, perception of health workers, distance to health facility, etc.). PMI/Malawi has prioritized the implementation of the Malaria Behavior Survey in CY 2020 using previous MOP funds to collect additional data on the specific individual, social, and environmental barriers to prompt care-seeking. It is expected that data from this survey will provide insights into the most appropriate behavior change approach (factors to address, target audience, messages, etc.). PMI/Malawi also will be conducting operational research to evaluate the impact of expanding iCCM, to persons over five years of age, on access to care. In the interim, ongoing SBC interventions will continue to promote prompt care-seeking through participatory action media at the household and community level. Service communication efforts through HSAs and ANC will also emphasize the importance of prompt care-seeking.

Key Question 3

How have malaria testing and treatment practices evolved over time?

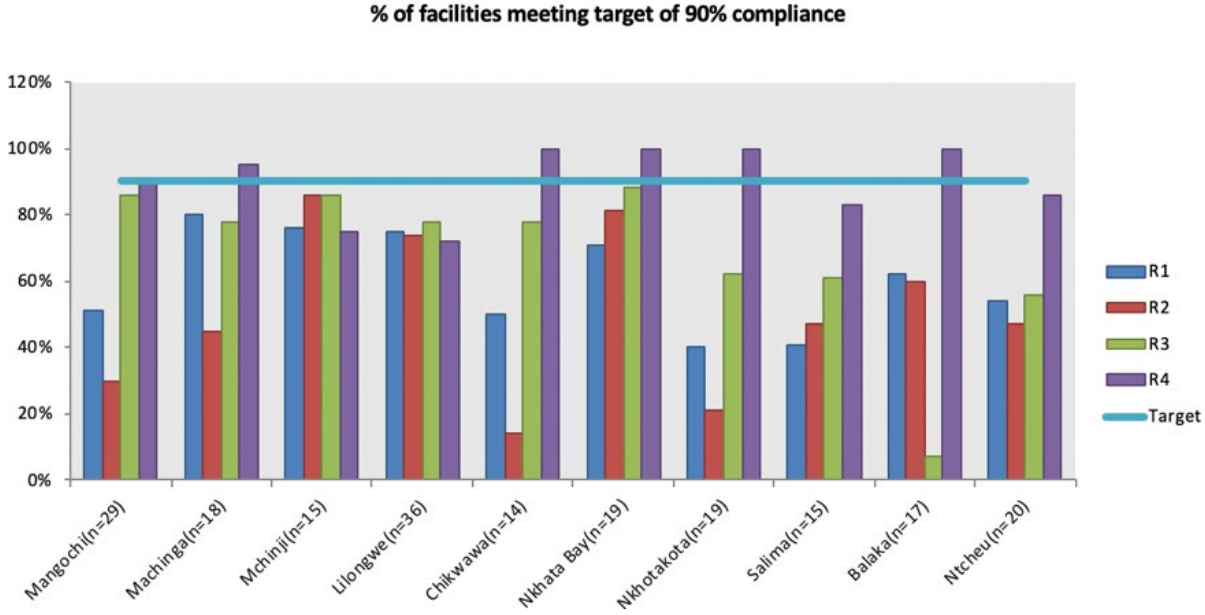
Supporting Data

Figure A21. Trends in Diagnosis and Treatment of Children with Fever



*Among children under 5 years of age with fever in the 2 weeks before the survey
**Among children under 5 years of age with fever in teh2 weeks before the survey who received any antimalarial

Figure A22. Testing Prior to Treatment



Conclusion

Prior to 2010, Malawi's national policy recommended diagnostic testing prior to treatment only for individuals over five years of age; presumptive treatment was recommended for children aged less than five years due in part to the high prevalence of malaria and limited diagnostic capacity in-country. In 2010, the Government of Malawi updated its policy to include the use of RDTs for malaria diagnosis for all suspected cases. The Government of Malawi employed a phased approach for the procurement and distribution of malaria RDTs and concomitant

healthcare worker training with health facilities being targeted in 2011 and the community case management in 2015.

The top figure showing trends in diagnostic testing is based on MIS and DHS data, which are population-based household cross-sectional surveys and are nationally representative. The top figure provides evidence that the trends in diagnostic testing have improved since 2010 concomitant with the policy change and program implementation of RDTs, but the improving trend has stabilized in the more recent surveys.

In contrast, Figure A22 also shows trends in diagnostic testing is based on data from supervised case management assessments of healthcare workers in health facilities (i.e., outreach training and supportive supervision, or OTSS) in 10 PMI supported districts. The more focused OTSS reports indicate that testing by healthcare workers in health facilities has been improving in the ten PMI-supported malaria focus districts. Please see the corresponding bar chart above; please note that "R" and subsequent number refer to the OTSS rounds: R1-December 2017, R2-April 2018, R3-July/August 2018, and R4-July/August 2019.

The Government of Malawi has recommended ACTs as the first-line treatment for uncomplicated malaria since 2007. Use of ACTs has remained above 90% since 2014 according to population-based survey data.

Key Question 4

What is known about provider behavior in relation to testing and treatment practices?

Supporting Data

Figure A23. Facilitators and Barriers to Testing and Treatment

Facilitator	Type of Factor	Source	Evidence
High percentage of staff trained in malaria diagnosis and treatment	Internal - Knowledge	ONSE IE SARA Survey, 2017	73% of health facility staff surveyed had received training in malaria diagnostics and treatment.
High percentage of providers conduct the required diagnostic tests for malaria	Social	Malawi OTSS 2017-2019	In the 10 PMI-supported districts, data indicate continued improvement in the percent of health facilities that comply to case management guidelines and conduct a malaria test prior to treatment. Six of 10 districts met the target of 90% compliance for testing before treatment as of July/August 2019.
Barrier	**Type of Factor**	**Source**	**Evidence**
Availability of malaria diagnostic and treatment guidelines	Environmental	ONSE IE SARA Survey, 2017	Only 28.5% of health facilities reported availability of malaria diagnostic and treatment guidelines at the health facility.

Conclusion

While there is some available information on barriers to care-seeking within the community, there is little available data to understand the influence of provider behavior and service communication on prompt care-seeking. Through ongoing and planned data collection efforts (Malaria Behavior Survey, OR studies for iCCM and community-based IPTp) we hope to gather additional insight into provider practices around adherence to case management guidelines during pregnancy (HMIS currently does not disaggregate malaria cases by pregnancy status), the full extent to which provider behaviors influence IPTp uptake, and the extent to which service communication influences care seeking behavior.

Key Question 5

What is the current and planned support for case management at health facilities and in the communities by CHWs?

Supporting Data

As noted above, PMI/Malawi plans to maintain financial support for facility- and community-based care, with approximately 80% support to facility settings and 20% support to the community level. As noted in "Section V: Partner Funding Landscape," Malawi's investments for the 2021 implementation period and beyond are not yet known. Note that the host country government invests substantial funding into the national-to-local infrastructure and service delivery for malaria and many other programs. However, there has not been a standardized method for attributing those investments to malaria specifically. Thus, it may not yet be possible in the FY 2020 MOP cycle to attribute funding from the host country government. Additionally, with a new Global Fund allocation cycle starting in FY 2020, it is not yet known how and where the Global Fund will support case management activities. Specific to PMI/Malawi activities, it is not yet known the geographic distribution of support, which will be influenced by several factors including NMCP supported activities, Global Fund supported activities, and other USAID health supported activities. Please see Section III, Figure 7 for a geographical representation of PMI's support for case management at the health facility level during 2017-2020.

Conclusion

Due to transitions with PMI/Malawi supported activities and Malawi's new Global Fund request, funding levels and geographic support are yet to be determined. PMI/Malawi plans to work closely with the NMCP and the Global Fund to ensure that support to case management activities at the health facility and community level are maintained.

Key Question 6

What is the estimated need for RDTs for FY 2020?

Supporting Data

Figure A24. Gap Analysis Table for RDTs

Calendar Year	2019	2020	2021
RDT Needs			
Total country population	18,073,098	18,597,218	19,136,537
Population at risk for malaria [1]	18,073,098	18,597,218	19,136,537
PMI-targeted at-risk population	18,073,098	18,597,218	19,136,537
Total number of projected malaria cases (footnote 2)	8,664,451	8,024,148	7,844,006
Percent of malaria cases tested with an RDT (footnote 3)	98.5%	98.8%	99.0%
Total RDT Needs (footnote 4)	**14,081,907**	**13,080,973**	**12,813,191**
Partner Contributions (to PMI target population if not entire area at risk)*			
RDTs carried over from previous year	*13,810,065*	*13,041,158*	*4,960,185*
RDTs from Government			
RDTs from Global Fund	9,313,000		
RDTs from other donors			
RDTs planned with PMI funding	4,000,000	5,000,000	
Total RDTs Available	**27,123,065**	**18,041,158**	**4,960,185**
Total RDT Surplus (Gap)	**13,041,158**	**4,960,185**	**-7,853,006**

Footnotes: Add any additional explanations/footnotes in this section to clearly explain the entries in your table. Remember to explain how numbers are derived and specify data sources. Please draw from a validated national malaria quantification if it exists for your country.
1) Geographic coverage: entire population is at risk
2) The projected number of malaria cases estimated during the national quantification exercise was not based on the number of suspected malaria or fever cases but instead on the number of confirmed (RDT and microscopy) and presumed (i.e., clinical) cases reported during the previous year. To estimate the RDT need, a multiplier of 1.65 was applied to this number of confirmed and presumed cases. The factor of 1.65 was derived by dividing the total OPD suspected malaria cases tested for malaria with an RDT by the total number of confirmed malaria cases; thus the factor 1.65 represents the number of tests required to confirm 1 malaria case on average. (Personal communication with Global Health Supply Chain Procurement and Supply Chain Specialist) Based on the number of suspected cases reported in Section II, Figure 6, the "Total RDT needs" (row 8) appears to be a reasonable estimate of RDT need.
3) DHIS 2 2018 data shows this as 98.3% ; the assumption building group has then projected 98.5 % ,98.8% and 99% as targets for 2019,2020 & 2021 respectively based on the 2018 achievement of 98.3% as further improvements are envisaged (Source : 2019 National Quantification)
4) Assumes 1.65 tests are required for every confirmed case. Needs to fill pipeline are not included. See footnote 2 for additional details.

Conclusion

A national quantification was conducted by the NMCP and partners in February 2019. The total estimated RDT need is approximately 13 million. The estimated RDT need was calculated based on the ratio of the number of RDTs used divided by the number of confirmed malaria cases treated during the prior year. The ratio, which was 1.65, was used as a multiplier with the estimated number of confirmed cases for FY 2020, which was reduced by 5% from the prior year, to generate the estimated number of RDTs needed. During the FY 2020 MOP review, the methods for determining the quantification of RDTs were discussed with the NMCP. Although the methodology was questioned, the estimation was determined to be reasonable based on the number of suspected cases in CY 2018 (see Section II, Figure 6), and it was agreed to keep the

current estimates for FY 2020 planning but to revisit the methodology with the NMCP, PMI/Malawi, and partners to more accurately estimate the need.

Based on the estimated need of approximately 13 million RDTs, a gap of about 8 million RDTs exists. Historically, PMI/Malawi and the Global Fund each procure approximately 50% of the RDT need annually. With a new Global Fund allocation cycle starting in FY 2020, it is not yet known how many RDTs the Malawi NMCP will request through their Global Fund grant. Therefore, PMI/Malawi plans to procure about 5 million RDTs to cover the historic 50% balance plus buffer stock, with the expectation that the Global Fund allocation will be used to cover the remaining gap. PMI/Malawi plans to support the NMCP during the Global Fund grant application process, and will work with the NMCP and the Global Fund to adjust the amounts that PMI/Malawi procures accordingly.

Key Question 7

What is the estimated need for ACTs for FY 2020?

Supporting Data

Figure A25. Gap Analysis Table for ACTs

Calendar Year	2019	2020	2021
ACT Needs			
Total country population	18,073,098	18,597,218	19,136,537
Population at risk for malaria	18,073,098	18,597,218	19,136,537
PMI-targeted at-risk population [1]	18,073,098	18,597,218	19,136,537
Total projected number of malaria cases[2]	8,664,451	8,024,148	7,844,006
Total ACT Needs [3]	**8,664,451**	**8,024,148**	**7,844,006**
Partner Contributions (to PMI target population if not entire area at risk)[1]			
ACTs carried over from previous year	*7,863,077*	*8,252,116*	*5,184,658*
ACTs from Government			
ACTs from Global Fund	7,169,670	3,956,670	
ACTs from other donors			
ACTs planned with PMI funding	1,883,820	1,000,020	
Total ACTs Available	16,916,567	13,208,806	5,184,658
Total ACT Surplus (Gap)	8,252,116	5,184,658	-2,659,348

Footnotes: Add any additional explanations/footnotes in this section to clearly explain the entries in your table. Remember to explain how numbers are derived and specify data sources. Please draw from a validated national malaria quantification if it exists for your country.
1) Geographic coverage: entire population is at risk
2) This is the number of confirmed (RDT, microscopy) plus clinical (symptoms only) malaria cases. Projection of 15% reduction in malaria cases in 2019, 10% in 2020 and 5% in 2021, as a result of LLIN mass campaign conducted in 2018 and impact of IRS.
3) Needs to fill pipeline not included.

Conclusion

As noted above, a national quantification was conducted by the NMCP and partners in February 2019. The total estimated ACT need is approximately 8 million. The estimated ACT need was calculated based on the number of projected diagnostically confirmed and presumed cases, including a 5% reduction from the previous year based on the benefits of continued malaria prevention and control efforts.

Historically, PMI/Malawi and the Global Fund each procure approximately 50% of the ACT need annually. With a new Global Fund allocation cycle starting in FY 2020, it is not yet known how many ACTs the Malawi NMCP will request through their Global Fund grant. Therefore, PMI/Malawi plans to procure about 3 million ACTs to cover the historic 50% balance plus buffer stock, with the expectation that the Global Fund allocation will be used to cover the remaining gap. PMI/Malawi plans to support the NMCP during the Global Fund grant application process, and will work with the NMCP and the Global Fund to adjust the amounts that PMI/Malawi procures accordingly.

Key Question 8

What is the projected need for severe malaria treatment and any other treatments as applicable?

Supporting Data

Figure A26. Gap Analysis Table for Injectable Art

Calendar Year	2019	2020	2021
Injectable Artesunate Needs			
Projected Number of Severe Cases[1]	194,950	160,483	156,880
Projected # of severe cases among children			
Projected # of severe cases among adults			
Total Injectable Artesunate vials Needs [2]	**1,469,148**	**1,209,406**	**1,182,253**
Partner Contributions			
Injectable artesunate vials carried over from previous year	*1,313,452*	*513,269*	
Injectable artesunate vials from Government			
Injectable artesunate vials from Global Fund	668,965	477,464	
Injectable artesunate vials from other donors			
Injectable artesunate vials planned with PMI funding			
Total Injectable Artesunate vials Available	**1,982,417**	**990,733**	**0**
Total Injectable Artesunate vials Surplus (Gap)	**513,269**	**-218,673**	**-1,182,253**

Footnotes:
[1] Assumes 2.25% in 2019 (and 2% in 2020 and 2021) of malaria cases will progress to severe (DHIS2 2018 data)
[2] Assumes an average of 8 vials for each case (Malawi Malaria Treatment Guidelines). Needs to fill pipeline not included.

Figure A27. Gap Analysis Table for RAS 50mg

Calendar Year	2019	2020	2021
Artesunate Suppository Needs			
Number of severe cases expected to require pre-referral dose at community level[1]	11,307	9,308	9,099
Total Artesunate Suppository Needs [2]	**3,399**	**2,797**	**2,734**
Partner Contributions			
Artesunate suppositories carried over from previous year	*5,933*	*2,534*	
Artesunate suppositories from Government			
Artesunate suppositories from Global Fund			
Artesunate suppositories from other donors			
Artesunate suppositories planned with PMI funding			
Total Artesunate Suppositories Available	**5,933**	**2,534**	**0**
Total Artesunate Suppositories Surplus (Gap)	**2,534**	**-263**	**-2,734**

Footnotes:

[1] Assumes 5.8% of severe malaria cases to be referred from the community. (Source: DHIS 2 2018; 2019 National Quantification)

[2] Assumes 30% of the referred case from the community will require the 50mg strength. (2019 National Quantification). Needs to fill pipeline are not included. Please note that the estimate for 50 mg RAS was made prior to new treatment guidelines being released in Malawi. The new "Guidelines for the treatment of malaria in Malawi", which are due to be released before the end of 2019, are anticipated to recommend dosing in 100mg increments, consistent with WHO recommendations. The quantification for the 50mg will then be moved and added to the 100mg amount.

Figure A28. Gap Analysis Table for RAS 100mg

Calendar Year	2019	2020	2021
Artesunate Suppository Needs			
Number of severe cases expected to require pre-referral dose at community level	11,307	9,308	9,099
Total Artesunate Suppository Needs [2]	**11,315**	**9,312**	**9,105**
Partner Contributions			
Artesunate suppositories carried over from previous year		*19,481*	*10,169*
Artesunate suppositories from Government			
Artesunate suppositories from Global Fund			
Artesunate suppositories from other donors			
Artesunate suppositories planned with PMI funding	30,796		
Total Artesunate Suppositories Available	**30,796**	**19,481**	**10,169**
Total Artesunate Suppositories Surplus (Gap)	**19,481**	**10,169**	**1,064**

Footnotes:

[1] Assumes 5.8% of severe malaria cases to be referred from the community. (Source: DHIS 2 2018; 2019 National Quantification)

[2] Assumes 70% of the referred case from the community will require the 100mg strength (2019 National quantification). Needs to fill pipeline not included. Please note that the estimate for RAS was made prior to new treatment guidelines being released in Malawi. The new "Guidelines for the treatment of malaria in Malawi", which are due to be released before the end of 2019, are anticipated to recommend dosing in 100mg increments, consistent with WHO recommendations. The quantification for the 50mg will then be moved and added to the 100mg amount.

Conclusion

PMI/Malawi has not procured commodities for severe malaria management over the past few years, as these are contributed by Global Fund. As noted above, with a new Global Fund allocation cycle starting in FY 2020, it is not yet known how much support Global Fund will provide for case management activities. PMI/Malawi plans to work closely with the NMCP and the Global Fund to ensure that the projected need for severe malaria treatment is met.

Key Question 9

Are the first-line ACTs effective and monitored regularly?

Supporting Data

Figure A29. Most Recently Completed and Ongoing Antimalarial Therapeutic Efficacy Studies

Year	Sites	Treatment arms	PCR-corrected ACPR>90%?	Where molecular resistance work was completed or the plan, if any, for molecular resistance work
2017	Mangochi, Nkhotakota, Karonga	AL, ASAQ	Yes	2015 TES: CDC 2017 TES: Malawi-Wellcome Trust
2019	TBD	AL, ASAQ, DP	NA	TBD

Source, Study report titled: Efficacy and Safety of Antimalarials for the Treatment of Uncomplicated *Plasmodium Falciparum* Malaria in Malawi, 2016

Footnotes - ACPR: adequate clinical and parasitological response; AL: artemether-lumefantrine; ASAQ: amodiaquine-artesunate; DP: Dihydroartemisinin-Piperaquine; PARMA: PMI-supported Antimalarial Resistance Monitoring in Africa

Conclusion

As of 2017, AL and ASAQ remain efficacious in Malawi.

Key Question 10

Are there other key items, such as lab strengthening, private sector support, etc. that should be considered?

Supporting Data

According to the 2017 MIS, 21% of patients with fever seek treatment in the private sector. The national policy allows testing and treatment to occur in the private sector; however, data from private sector clinics is not currently captured in the DHIS2.

The NMCP would like to increase availability of diagnosis and treatment of malaria to school-aged children, particularly focused in a school setting. The 2015-2016 Malawi Micronutrient Survey demonstrated that 42% of school-aged children tested positive for malaria.

Conclusion

PMI/Malawi's service delivery partner provides tailored mentorship, supervision, and training to improve the quality of malaria diagnosis and care in private sector clinics. Targeted support for private sector clinics addresses major gaps including the use of presumptive treatment, lack of knowledge on current treatment guidelines, and lack of proper diagnostic skills.

PMI/Malawi will be conducting operational research to evaluate the impact of expanding iCCM, to persons over five years of age, on access to care including school-aged children.

Key Question 11

What are the in-country considerations that impact your funding allocation in this category?

Supporting Data

To meet Sustainable Development Goals, countries need at least 4.45 health workers per 1,000 people. Malawi has only 0.5 health workers per 1,000 people[7]. In response to this shortage of health workers, there is extensive task shifting to lower level cadres with a focus on community-level interventions via HSAs.

Conclusion

This shortage of health workers requires PMI/Malawi and the NMCP to think creatively about case management activities by increasing capacity at the community level and facility level, and conducting research to tailor interventions to the local context, and to better understand individual and provider behaviors. As mentioned in the introduction section, the PMI Malawi team is entering a design phase, and specific activities to address these issues will be defined during this period.

[7] https://www.wemos.nl/wp-content/uploads/2018/11/Wemos_Country-report-Malawi-2018.pdf

2.B. DRUG-BASED PREVENTION

NMCP objective
To increase uptake of at least three doses of Intermittent Preventive Treatment (IPTp) from 12 percent in 2014 to 60 percent by 2022.
NMCP approach
● In order to combat the problem of malaria during pregnancy, the country will support the delivery of a comprehensive package of interventions to ensure improved pregnancy outcomes and maternal survival, including Intermittent Preventive Treatment (IPTp) administered through ANC, provision of ITNs to pregnant women at first ANC and at delivery, and case management of malaria-infected pregnant women. ● **Health facility based IPTp**: The MoH will promote malaria in pregnancy prevention through directly observed treatment (DOT) for IPTp that will further be strengthened by providing DOT equipment (cups and buckets) at all facilities. ● **Community based IPTp**: The MoH will also explore multiple channels for delivery of IPTp in order to increase uptake of IPTp, due to the fact that current delivery is dependent on one channel, through ANC clinics only. In this case, the program is conducting a pilot study on feasibility, acceptability, and effectiveness of HSAs for community IPTp distribution. Results will guide the training for HSAs on community IPTp. ● **Provision of quality IPTp care**: The NMCP will build the capacity of health workers in quality-of-care through training of ANC health service providers. The MoH will conduct quarterly integrated supervision visits to ANC health service providers focusing on MIP and Safe Motherhood in order to improve their level of knowledge, skills, and attitudes in the provision of care to pregnant women. The MoH will also conduct regular quarterly meetings of the MIP Sub-Working Group Committee and other related coordinating mechanisms (e.g. Case Management Technical Working Group).
PMI objective, in support of NMCP
PMI/Malawi supports all aspects of the NMCPs approach to MIP. Through ANC, the goal is to provide an integrated package of high impact interventions and to ensure uptake of those interventions.
PMI-supported recent progress (past ~12-18 months)
● Per available supply chain data, stockout rates of SP averaged approximately 11% in 2018 and 7% in 2019 between January and June, with a 5% stockout rate reported in May. PMI/Malawi supported distribution of more than 1,891,333 treatments of SP for IPTp (FY 2018).

- PMI/Malawi continues to support routine distribution of ITNs through ANC and at labor and delivery (see ITN section).
- PMI/Malawi also continued to support appropriate case management of malaria in pregnant women through the procurement of antimalarial drugs, outreach training, supportive supervision in health facilities, and SBC for prompt care-seeking through the integrated communication platform.
- 469 providers from 259 health facilities went through supportive supervision to reinforce IPTp3+ and strengthen IPTp documentation.
- 281 health workers from Nkhatabay, Ntcheu, Chikwawa, and Mchinji were trained in MIP guidelines (these districts were not previously trained in MIP guidelines under predecessor projects).

PMI-supported planned activities (next ~12-18 months, supported by currently available funds)

- Support to health facilities to report into the OpenLMIS and improve overall data quality
- Provision of IPTp and integration of malaria into maternal, neonatal, and child health services, including messaging into routine ANC strengthening activities
- Strengthen MIP supervision to reinforce IPTp3+ and strengthen IPTp documentation in registers
- Support malaria diagnostic quality assurance
- Supportive supervision, coaching, and mentoring to private sector clinics
- Joint laboratory and clinical OTSS

2.B.ii MALARIA PREVENTION IN PREGNANCY (MIP)

PMI Goal

Support the national strategy for MIP, which includes provision of ITNs at first ANC visit, IPTp to all pregnant women in malaria endemic area starting at 13 weeks gestational age (for a minimum of 3 doses), and effective case management of malaria, in accordance with WHO recommendations.

Do you propose to increase, decrease, or maintain funding allocation levels for this activity? Why, and what data did you use to arrive at that conclusion?

PMI/Malawi has maintained funding for MIP. This decision was based on the fact that there have been recent improvements in IPTp3 coverage following the update to the national policy promoting three doses. Further, the Reproductive Health Department (RHD) of the Ministry of Health has recently changed the ANC policy to recommend that women make a total of eight visits as

recommended by the WHO. PMI/Malawi believes that this will lead to women making more visits and thus contribute to increasing IPTp coverage. PMI/Malawi is in the process of completing a study on community IPTp, and will have the data in late 2020 to recommend whether this strategy appears promising. PMI/Malawi has also planned for a Malaria Behavioral Survey to better understand the factors that affect when and how many ANC visits women make and uptake of IPTp. PMI/Malawi is proposing to continue supporting supervisory visits to ensure providers are adhering to policies and providing appropriate care. SBC will target communities and providers to encourage early and frequent care-seeking and appropriate practices.

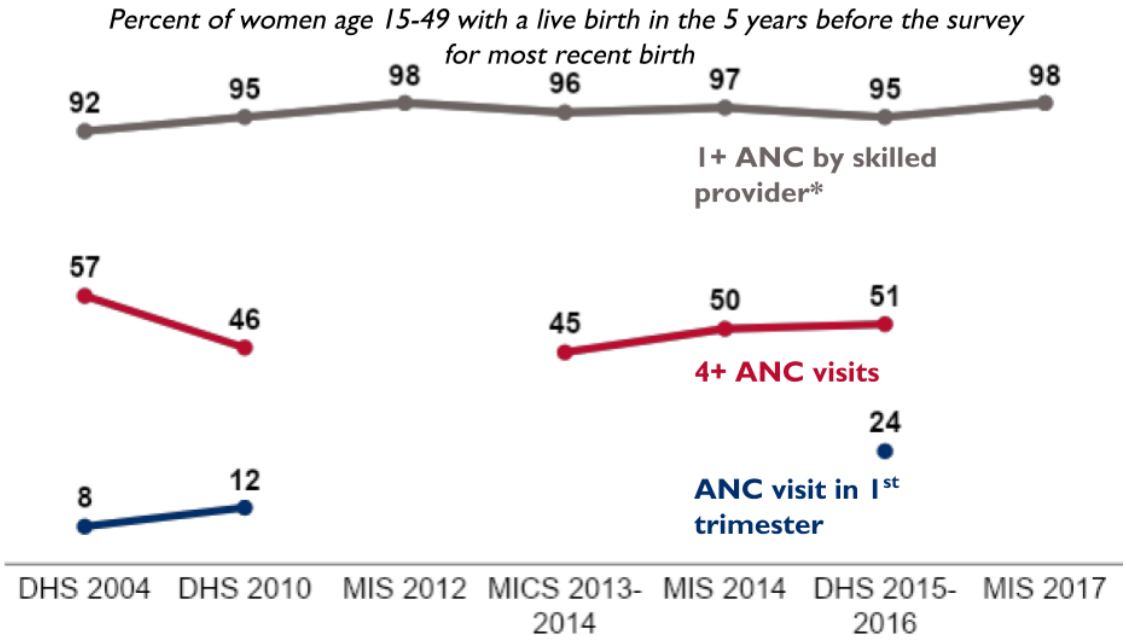
Please see Table 2 for a detailed list of proposed activities with FY 2020 funding.

Key Question 1

What proportion of pregnant women are receiving ANC early and frequently (as recommended by national and/or WHO strategies) during their pregnancy?

Supporting Data

Figure A30. Trends in ANC Coverage



*Skilled provider includes doctor, nurse, or midwife

Figure A31. Facilitators and Barriers to ANC Coverage

Facilitator	Type of Factor	Data Source	Evidence
Increased access to information about ANC for women in the early stages of pregnancy	Environmental	ONSE cIPTp study quarterly data review meeting	Preliminary data suggests: Implementation of community based IPTp has led to strong linkage between ANC and HSAs; HSAs were able to identify pregnant women early and are receiving information about pregnant women from community volunteers.
Barrier	**Type of Factor**	**Data Source**	**Evidence**
Cultural beliefs limit interactions early in pregnancy	Social - Norms	ONSE cIPTp Study Quarterly Data Review Meeting, HC4L Program Data	Norms and beliefs that promote secrecy and non-disclosure of pregnancy in the early days/months and an inability by community mobilizers to identify pregnant women during the first three months because they may not be showing makes it difficult to promote early ANC attendance to newly pregnant women
Distance traveled to receive ANC services	Environmental	ONSE cIPTp Study Baseline Survey Report	65% of women surveyed reported traveling for more than one hour to a health facility for ANC services.
Lack of provider knowledge of new ANC facility registers	Internal - Knowledge	ONSE cIPTp Study Quarterly Data Review Meeting	The RHD updated the ANC policy to reflect eight contact visits. Following this change, ANC registers were updated to capture data on additional contacts. While the registers have been disseminated to health facilities, ANC providers have not yet been oriented on the new ANC facility register.

Conclusion

While Malawi has a relatively high proportion of women who attend three ANC visits, there is a big drop-off between three and four visits (84% for ANC3+ and 50% for ANC4+ per cIPTp baseline survey data), which is likely a result of the fact that many women start ANC relatively late (about 50% start after 20 weeks; the median gestational age at first ANC is 4.8 months (DHS 2015/6)). Additionally, preliminary data from the ongoing cIPTp OR suggests that HSAs have been able to identify pregnant women early resulting in increased access to information about ANC during early pregnancy stages. While this access has seemingly increased, cultural beliefs limit early ANC attendance and distance traveled to a health facility. Results from the Malaria Behavior Survey will help to quantify the extent to which the barriers exist for improved programming for SBC.

The RHD recently updated its policy to recommend eight ANC contacts per the new WHO guidance. While the policy supports the provision of IPTp starting at 13 weeks, the ANC policy as currently written is unclear as to whether they recommend a visit between 13 and 16 weeks. PMI/Malawi is working with the MIP technical working group to ensure that the guidance provided to health care workers is clear on this point. PMI/Malawi expects to see improvements in ANC4 attendance with the implementation of this new policy.

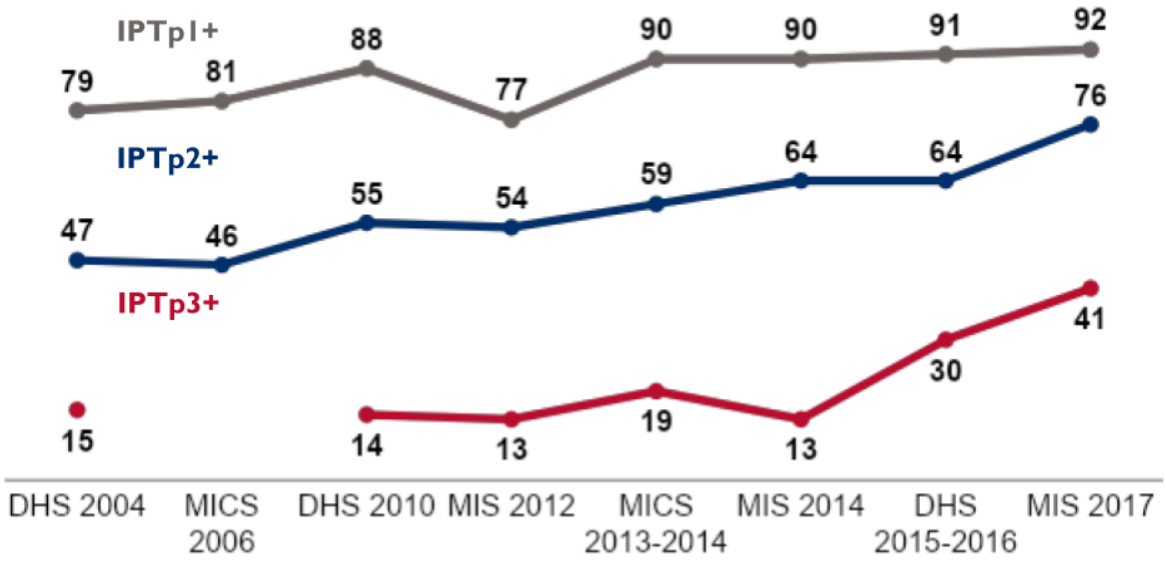
Key Question 2

What proportion of pregnant women are receiving the recommended doses of IPTp?

Supporting Data

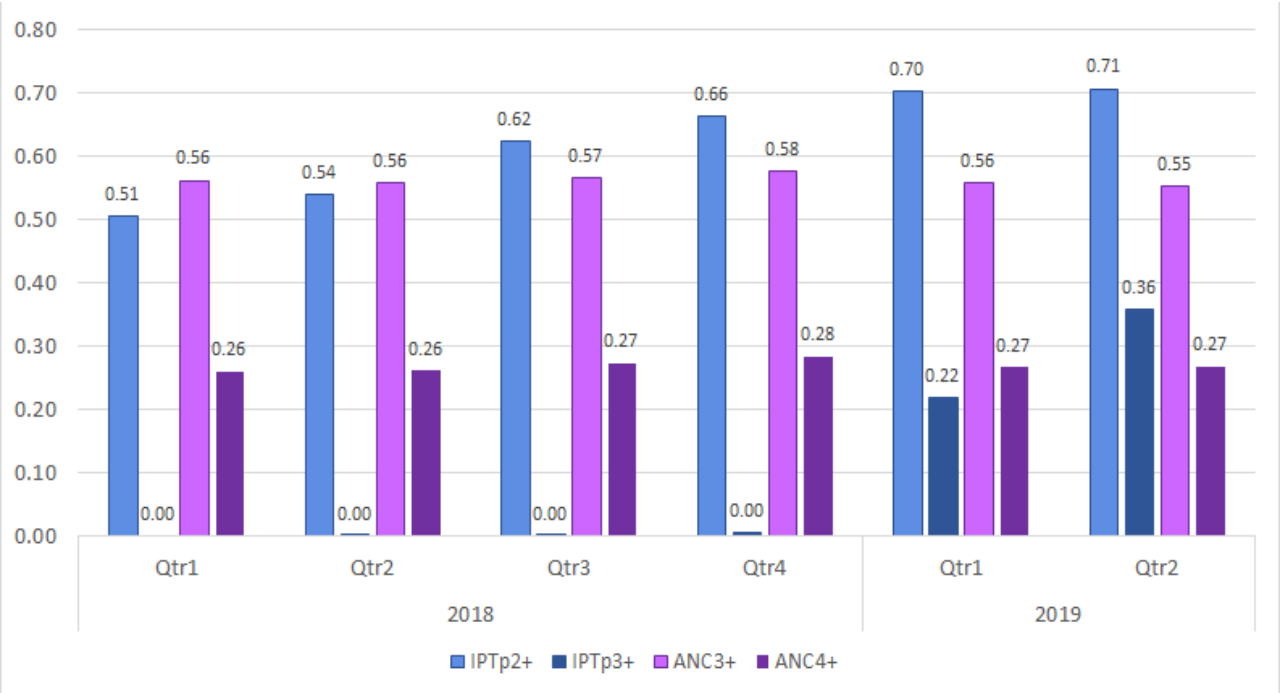
Figure A32. Trends in IPTp

Percent of women age 15-49 with a live birth in the two years before the survey who received the specified number of doses of SP/Fansidar during their last pregnancy



*These indicators have changed slightly over time. Depicted here is the coverage value, not restricted to doses received at ANC.

Figure A33. Coverage of IPTp and ANC from DHIS2[8]



Conclusion

Malawi has excellent coverage of IPTp overall, with 92% coverage of IPTp1, 76% of IPTp2, and 41% IPTp3 as of the 2017 MIS. Given that HIV prevalence among women of reproductive age was 11% in 2015/6 (2015-16 DHS), this indicates that nearly all eligible pregnant women attending ANC1 receive IPTp. PMI/Malawi is exploring the potential for community distribution of IPTp and promotion of ANC attendance to further close the gap between IPTp2 and IPTp3 in a pilot study being conducted in Ntcheu and Nkhatabay. This will be completed in Q3 of 2020. The data from this study will be used to decide whether to move forward with such a program.

Key Question 3

What is the gap between ANC attendance and IPTp? What barriers and facilitators exist, especially among providers?

[8] Note that the DHIS2 system in Malawi only started to collect data on IPTp3 in Jan 2019.

Supporting Data

Figure A34. Trends in Missed Opportunities for IPTp

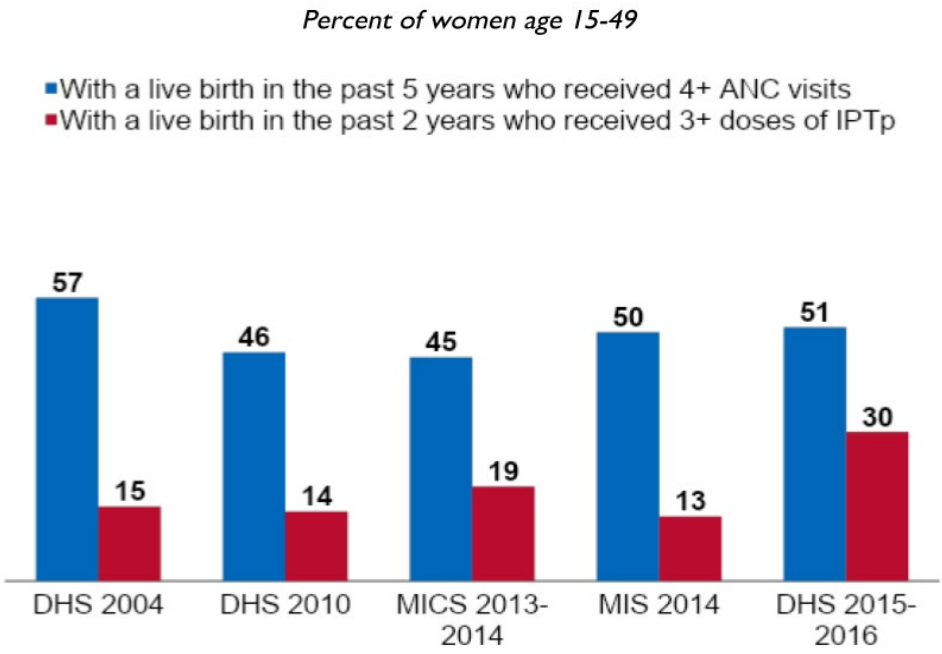


Figure A35. SP Stockout Rate, FY2017 - 2019

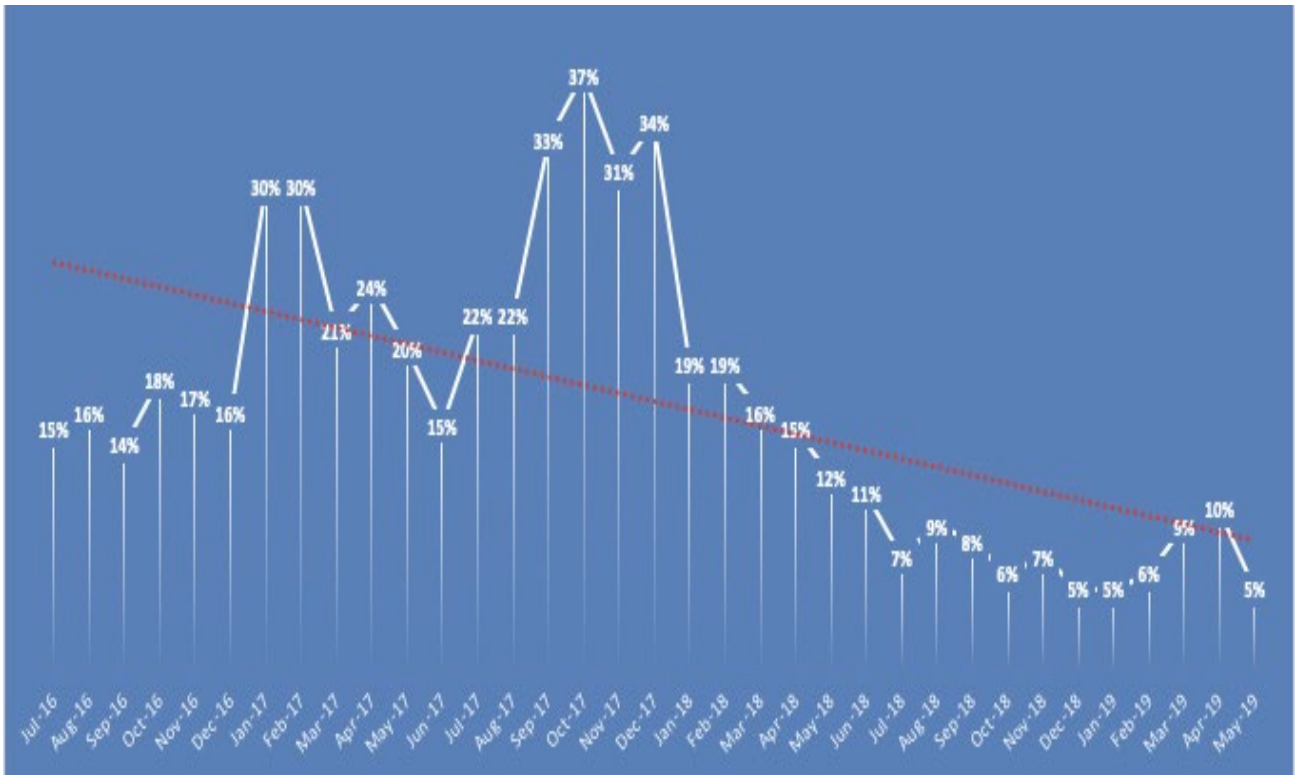


Figure A36. Facilitators and Barriers to ANC Attendance

Facilitator	Type of Factor	Source	Evidence
Relatively low stockout rate of SP at health facilities	Environmental	LMIS, SP Stockout Rate, FY17-FY19	According to available supply chain data, stockout rates of SP averaged approximately 11% in 2018 and approximately 7% in 2019 between January and June, with a 5% stockout rate reported in May.
Barrier	**Type of Factor**	**Source**	**Evidence**
Low risk perception of malaria among pregnant women	Internal - Risk Perception	HC4L Program Rata	Program review data through participatory action media has indicated that some pregnant women believe that when they are not sick during pregnancy, there is no need to take medicine to prevent malaria.
Belief that SP is not an effective prevention medication	Internal - Response Efficacy	HC4L Program Data	SP was withdrawn from use as a treatment medication for acute malaria in 2007. Data from recent participatory action media has indicated women still refuse SP because they do not believe that it works (given it was withdrawn as a malaria treatment medication).
Fear of SP side effects such as dizziness or vomiting	Internal - Attitudes	HC4L Program Data	Women may have experienced vomiting or know other women who experienced vomiting after taking SP, and may be resistant to taking it.
Providers lack sufficient interpersonal/ counseling skills to be able to identify, engage in dialogue about, and address patient barriers	Internal - Knowledge, Self-Efficacy	HC4L Program Data	Missed opportunities at the health facility where some providers may not provide adequate counseling through dialogue to address barriers and motivate pregnant women to take IPTp. This may be due to lack of skills or lack of time by providers.

Conclusion

As seen in the bar graphs, missed opportunities for IPTp administration (not taking into account women who are ineligible as a result of HIV) are only about 20%. However, if the HIV prevalence of 10.8% is taken into account, this figure would be lower. PMI/Malawi is conducting a register review exercise to better quantify true missed opportunities by dose, to better understand what is driving this, and what could be done to improve it. In order to further reduce missed opportunities for IPTp administration, PMI/Malawi will continue to procure SP and ensure delivery to the facility level to prevent stockouts (facility level stockouts have been low, at about 5% over the past year - see chart above), as well as to continue supportive supervision to promote best practices at facility level.

While relative to the target, Malawi is more than halfway to meeting their national goal (60% coverage by 2020), coverage of 40% for IPTp3+ represents one of the best coverage levels across PMI countries. Coverage of IPTp1 and IPTp2 are very high, at 92% and 76% respectively. Nonetheless, additional effort at facility level is needed to close the gap on missed opportunities between ANC attendance and IPTp uptake. PMI will support additional supportive supervision as a means to address this issue and will explore other opportunities to better quantify the facilitators and barriers related to providers through on-going OR. However, possibly more important to achieving high coverage is working to ensure that pregnant women make frequent ANC visits. As noted above, only 24% of women start ANC in first trimester, and the median gestational age at first ANC is 4.8 months (DHS 2015/6). Norms and beliefs that promote secrecy and non-disclosure in early pregnancy contribute to late attendance. Women's perceptions regarding ANC and barriers/ facilitators to early and frequent ANC attendance will be further explored and quantified in a planned Malaria Behavior Survey in early 2020, and the resulting information will be used to adjust SBC activities to target pregnant women and their families. Additionally, preliminary monitoring data from the community IPTp distribution study suggest that the use of HSAs to promote early and frequent ANC attendance might be an effective way to address the issues of late and infrequent ANC attendance.

Key Question 4

What proportion of pregnant women with fever and malaria infection are getting diagnosed and treated? What barriers and facilitators exist?

Supporting Data

Figure A37. SDP Stockout Rates, Lumefantrine Artemether FY 2017 - 2019

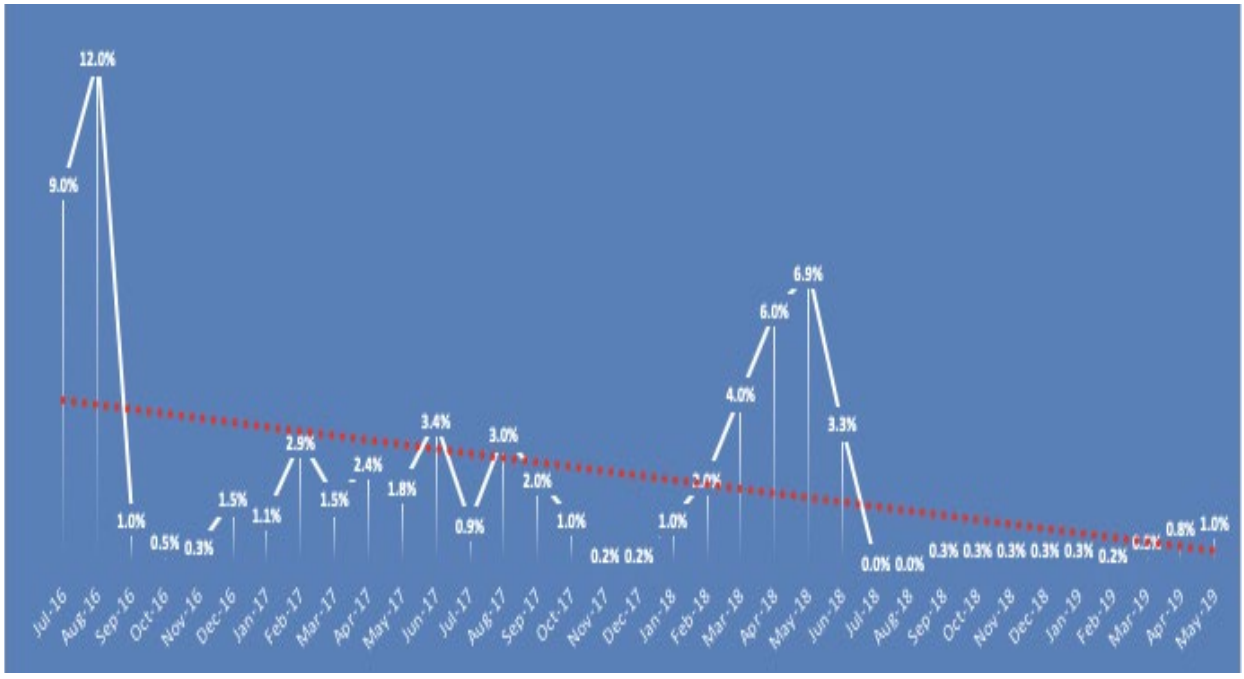


Figure A38. Facilitators and Barriers to Diagnosis and Treatment of Pregnant Women

Facilitator	Type of Factor	Data Source	Evidence
ACTs are readily available at health facilities	Environmental	LMIS	In recent months, Malawi has achieved significant improvement in availability of ACTs at service delivery points (SDPs) for pregnant women, children, and other clients. Stockout of all presentations of AL, the first line treatment for malaria, decreased from 4% in March 2018 to 0.5% in March 2019. The increased availability of SP and ACTs at SDPs will contribute to reduced malaria-related morbidity and mortality among vulnerable populations.
Barrier	**Type of Factor**	**Data Source**	**Evidence**
Long distances traveled to receive services	Environmental	ONSE cIPTp Study Baseline Survey Report	65% of women surveyed reported traveling for more than one hour to a health facility for ANC services.

Conclusion

Pregnant women presenting to ANC with fever/symptoms of malaria are referred to the outpatient department for diagnosis and treatment. At this point in time, the HMIS does not disaggregate malaria cases by pregnancy status. Thus, there is no information on cases of malaria in pregnancy. Pregnant women presenting to facilities with malaria receive free diagnosis and treatment. Stockout rates of ACTs have been remarkably low, suggesting that services are available - though women may have to travel far to reach services. Preliminary data from the STOPMIP-Malawi study (assessing the efficacy of IPTp-SP vs IPTp-DP) found that approximately 20% of pregnant women in Machinga District had malaria by PCR at the time of enrollment in the study at first ANC.

Malaria in pregnancy remains an issue, as evidenced by the high proportion of pregnant women with malaria at first ANC, however, data on the incidence of malaria cases among pregnant women is not currently being captured. PMI/Malawi has suggested to the NMCP that these data should be available, but this will require a change to the registers.

With support from PMI/Malawi and other partners, Malawi will continue to support SDPs to increase the availability of life-saving malaria medicines through improved quantification, supply plan monitoring, inventory management, supportive supervision and mentorship, data management, and reporting.

Key Question 5

What is the estimated need for IPTp commodities over the next three years and what proportion of this need will PMI support?

Supporting Data

Figure A39. Gap Analysis Table for SP

Calendar Year	2019	2020	2021
Total country population	18,073,098	18,597,218	19,136,537
SP Needs			
Total number of pregnant women[1]	592,798	609,989	627,678
Total SP Need (in treatments) (see footnotes 2)	**1,719,113**	**1,768,967**	**1,820,267**
Partner Contributions			
SP carried over from previous years	*2,326,944*	*3,407,831*	*4,238,864*
SP from Government			
SP from Global Fund			
SP from Other Donors			
SP planned with PMI funding[3]	2,800,000	2,600,000	
Total SP Available	**5,126,944**	**6,007,831**	**4,238,864**
Total SP Surplus (Gap)	**3,407,831**	**4,238,864**	**2,418,597**

Footnotes:
1) Expected population that is pregnant: 3.28%
2) source: MIS 2017. ANC4 not available. Please note that the Malawi_FY2020 MOP commodity table provided to us with the Malawi National Quantification Estimate was incorrect for Total SP needed. The original estimate provided assumed 3.67 SP treatments for every pregnant woman. We have updated this excel sheet to reflect ANC attendance in Malawi. The Total SP need (in treatments) decreased with this update.
3) 2019: 7.2 million tablets from MOP FY18 plus 1.2 million tablets procured with MOP FY17 funding but delivered in January 2019.

Conclusion

Currently, Malawi has adequate supplies of SP to cover the estimated needs through 2021. Thus, PMI/Malawi has not planned to procure additional SP with FY2020 funds.

Key Question 6

What are the in-country considerations that impact your funding allocation in this category?

Supporting Data

Malawi has recently submitted their investment case to the Global Financing Facility (GFF) whose overall goal is to improve maternal, adolescent, and child health outcomes through quality essential health package services. Currently, Malawi has $10M from the GFF Trust Fund to focus on child health and has the potential to receive an additional $10M from the GFF Trust Fund for other health projects in support of the overall GFF goal.

Conclusion

PMI/Malawi expects this will have a positive impact on diagnosis, treatment, and prevention of malaria in children, adolescents, and women of reproductive age. PMI-supported interventions that are integrated with maternal, neonatal, and child health may need to be revisited if Malawi receives the aforementioned $10M for health projects.

3. CROSS-CUTTING AND OTHER HEALTH SYSTEMS

3.A. SUPPLY CHAIN

NMCP objective
To reduce the annual average stock out rate of all artemisinin-based combination therapies from 11% in 2016 to 5% in 2022.
NMCP approach
The NMCP has identified supply chain system strengthening as a key intervention area in its fight against malaria. Overall, the NMCP's goal is to ensure malaria commodity availability at all levels in the supply chain. The NMCP, in collaboration with donors and other partners, will work to ensure effective and efficient procurement, storage, and distribution of malaria commodities. It will ensure proper coordination of supply chain resources from all partners to avoid duplication and increase the impact of the investments. NMCP will also support district staff and health facilities to ensure good storage practices, inventory management, supply chain data management, and reporting.
PMI objective, in support of NMCP
● PMI supports all of Malawi's supply chain priorities across the nation. As one of the major malaria donors in Malawi, PMI supports commodity quantification, procurement, warehousing, and distribution of ITNs, SP, ACTs, RDTs, and supply chain technical assistance. ● PMI operates a parallel supply chain for its commodities, it will continue to store and distribute its commodities through a private sector managed parallel supply chain pending when Central Medical Stores Trust (CMST) is able to manage an integrated national supply chain system. Malawi is currently working with stakeholders to integrate parallel supply chains by 2021. ● PMI supports pre- and in-service training of pharmacy personnel to address the acute shortage of human resources for supply chain management at SDPs, especially at the last mile. PMI and other U.S. Government programs support Malawi to run an integrated Open Logistics Management Information System (OpenLMIS). The OpenLMIS is a web-based data management and reporting platform that enables health facility staff to manage their commodities, report data, and order resupplies from central or regional warehouses.

- PMI supports the Government of Malawi's Drug Theft Investigation Unit (DTIU) to ensure accountability of malaria commodities and other medicines through audits of medicines, investigations, and other risk mitigation practices.

PMI-supported recent progress (past ~12-18 months)

- Provided technical and financial support for the national quantification of malaria and other essential medicines in February 2019.
- Provided technical and financial support for the development of Malawi's health supportive supervision and mentoring handbook with tools.
- Reduced stockouts of "All AL" from 4% in March 2018 to 0.5% in March 2019
- Trained 37 district level pharmacy staff as health supply chain support supervisors.
- Funded NMCP's quarterly Drug Management Task Force meetings to review data, address supply chain bottlenecks, and ensure commodity availability.
- PMI, in collaboration with PEPFAR and DFID Malawi, procured and installed 238 prefabricated storage units in 238 health facilities across Malawi (117 solar powered). The units added over 10,000 square meters of temperature-controlled storage space.
- Supported the national drug regulatory body, the Pharmacy, Medicines, Poison Board (PMPB), to conduct post-market surveillance (PMS) for malaria medicines in the public and private sector. The PMS will contribute to to the Government of Malawi's effort to ensure the availability of quality assured malaria medicines in Malawi.
- Support implementation of Malawi's Supply Chain Integration Roadmap activities.
- Supply chain bottlenecks include:
    - Inadequate human resources and capacity for supply chain
    - Non-compliance with supply chain standard operating procedures including First Expired First Out(FEFO principle), and record keeping.
    - Inadequate MoH and district budget for supply chain
    - Theft and lack of accountability of medicines

PMI-supported planned activities (next ~12-18 months, supported by currently available funds)

- National quantification of malaria medicines and other essential medicines in 2020
- Procure, warehouse, and distribute ITNs, SP, ACTs, RDTs, in 2020 and 2021
- Technical and financial support for district-led integrated supply chain supervision
- Maintenance and implementation of the national OpenLMIS system

- Pre-service training for 48 pharmacy assistants
- Development of a "National Product Catalogue" and foundation work on End-to-End commodity visibility initiative
- NMCP's quarterly Drug Management Task Force meetings to review data, address supply chain bottlenecks, and ensure commodity availability
- Support the Ministry of Health's Drug Theft Investigation Unit to conduct medicines audit, implement risk mitigation plan, investigate theft cases and ensure accountability of malaria commodities.

PMI Goal

Ensure consistent availability of quality products needed for malaria control and elimination (ACTs, RDTs, SP, Art. Inj., and ITNs) at health facilities and community level.

Do you propose to increase, decrease, or maintain funding allocation levels for this activity? Why, and what data did you use to arrive at that conclusion?

In line with global best practices, PMI/Malawi is proposing to slightly increase funding in supply chain to support the MoH to develop a National Product Catalogue (NPC), a single source mechanism to communicate standardized and accurate product and price data electronically to all stakeholders. It will reduce errors and losses, and increase visibility and speed in the supply chain.

Please see Table 2 for a detailed list of proposed activities with FY 2020 funding.

Key Question 1

Has the central level, (or sub-central level if appropriate) been stocked according to plan for ACTs, RDTs, SP and Art. Inj over the last year? If not stocked according to plan, have they been under, over or stocked out?

Supporting Data:

Figure A40. Central Stock Levels for ACTs

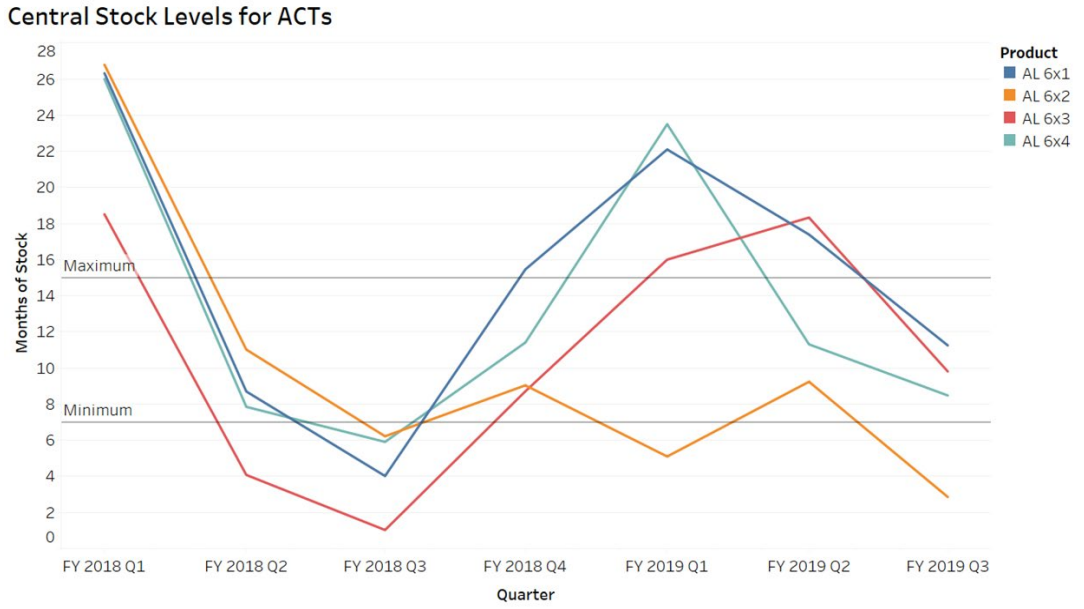
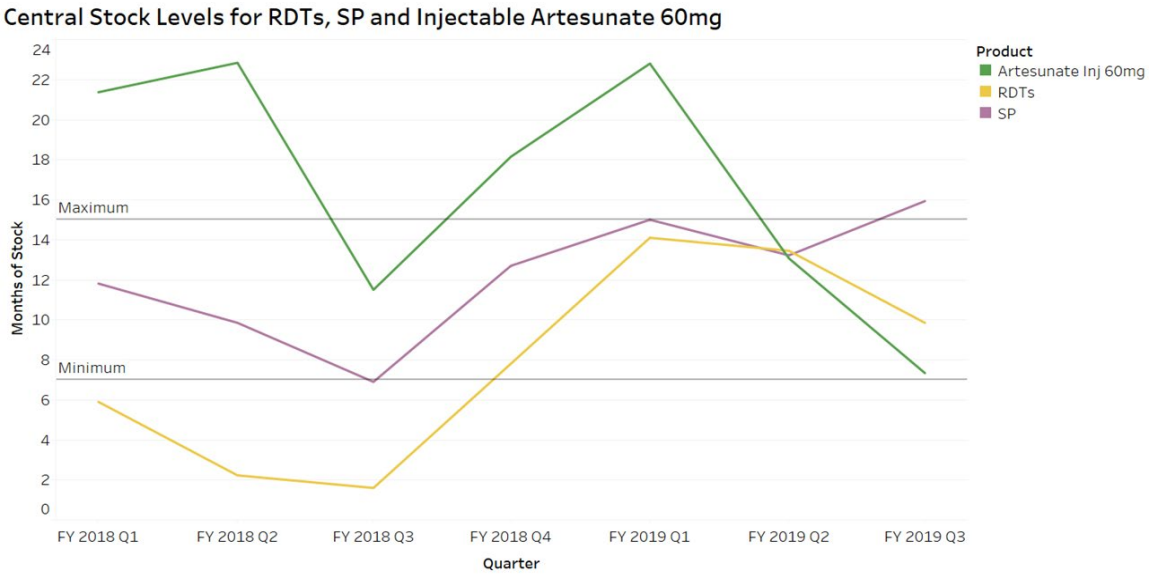


Figure A41. Central Stock Levels for RDTs, SP, and Injectable Artesunate, 60mg



Conclusion

Malawi is progressively working to achieve optimum inventory levels within the national threshold. Most of the malaria commodities are within the national minimum and maximum stock levels, 8 and 15 months respectively. PMI/Malawi will support the NMCP to maintain adequate inventory at all levels of the supply chain through supply planning, and commodity redistribution to avoid under and overstock at each stock holding unit in the supply chain.

Key Question 2

What are the trends in facility- and community health worker-level stockout rates for ACTs (including AL ability to treat), RDTs, and SP over the last year (if tracked)? Is there a seasonal or geographic difference in stockout rates?

Supporting Data:

Figure A42. ACT Stockout Rates

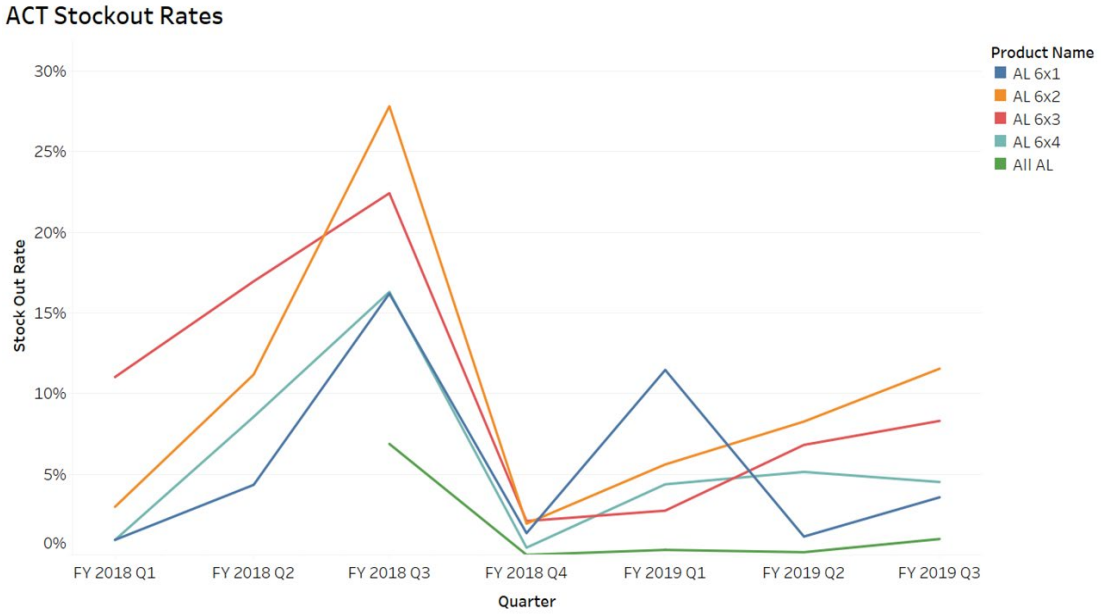
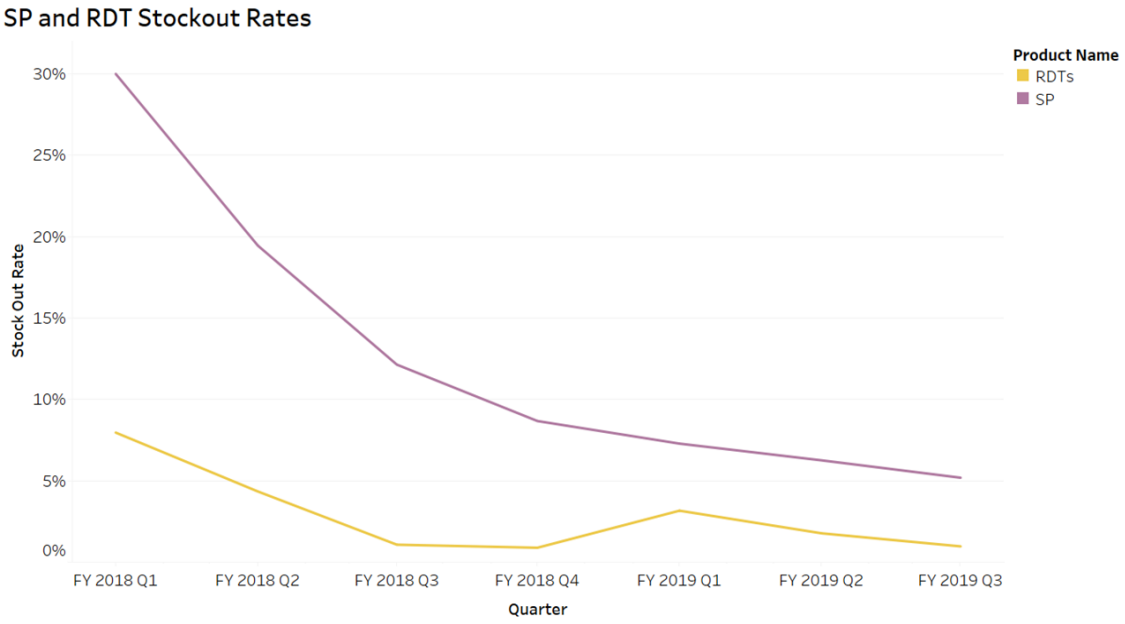


Figure A43. SP and RDT Stockout Rates



Conclusion

Malawi has made significant improvement in its malaria supply chain. Stock out of "All AL" decreased from 4% in March 2018 to 0.5% in March 2019. PMI/Malawi will work with the Global Fund and other partners to ensure availability and accountability of malaria medicines at SDPs. PMI/Malawi and partners will continue to support high impact activities such as OpenLMIS, supportive supervision and mentorship programs, and supply chain technical assistance at central and district level. PMI/Malawi will also work with stakeholders to ensure proper inventory management at all levels to prevent commodity loss in the program through theft and expiries.

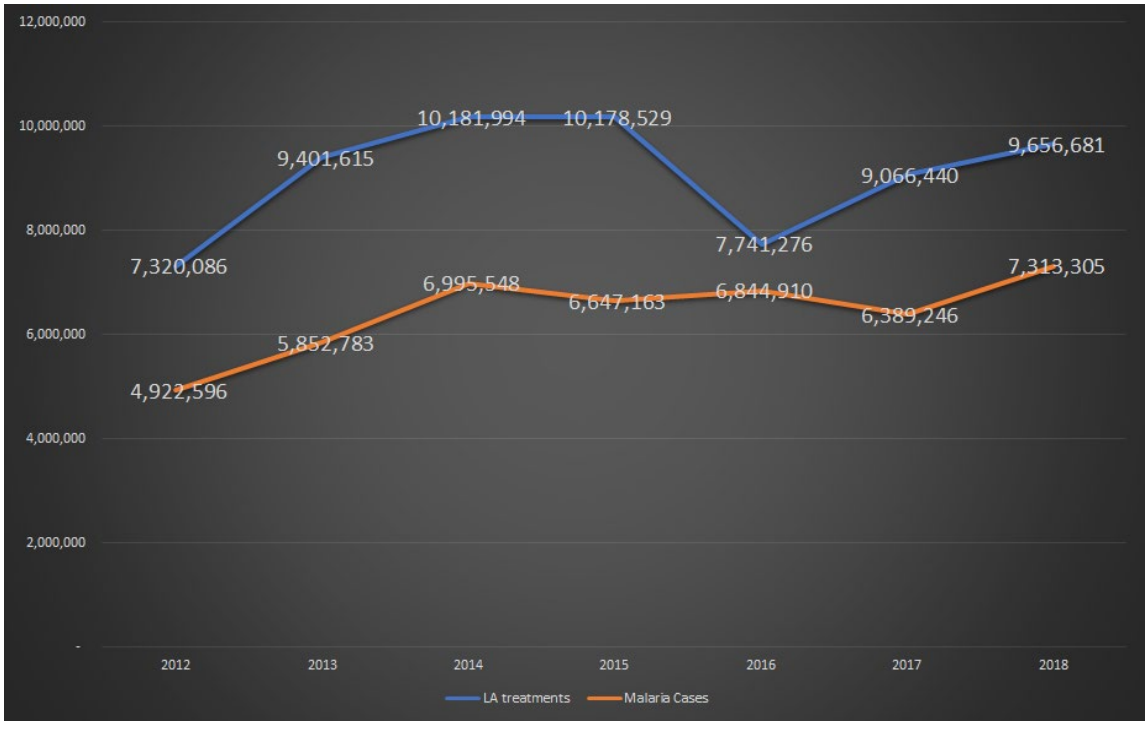
Key Question 3

What is the difference between quantities for ACTs consumed and malaria cases, and RDTs consumed and numbers tested? What is driving any differences seen?

Supporting Data

The difference between quantities of ACTs issued and malaria cases was 32% in 2018 compared to 50% in 2015. Key drivers for the discrepancy include poor data quality, presumptive treatment, theft, and poor record management (services and commodity).

Figure A44. LA Treatments vs Malaria Cases 2012 - 2018



Conclusion

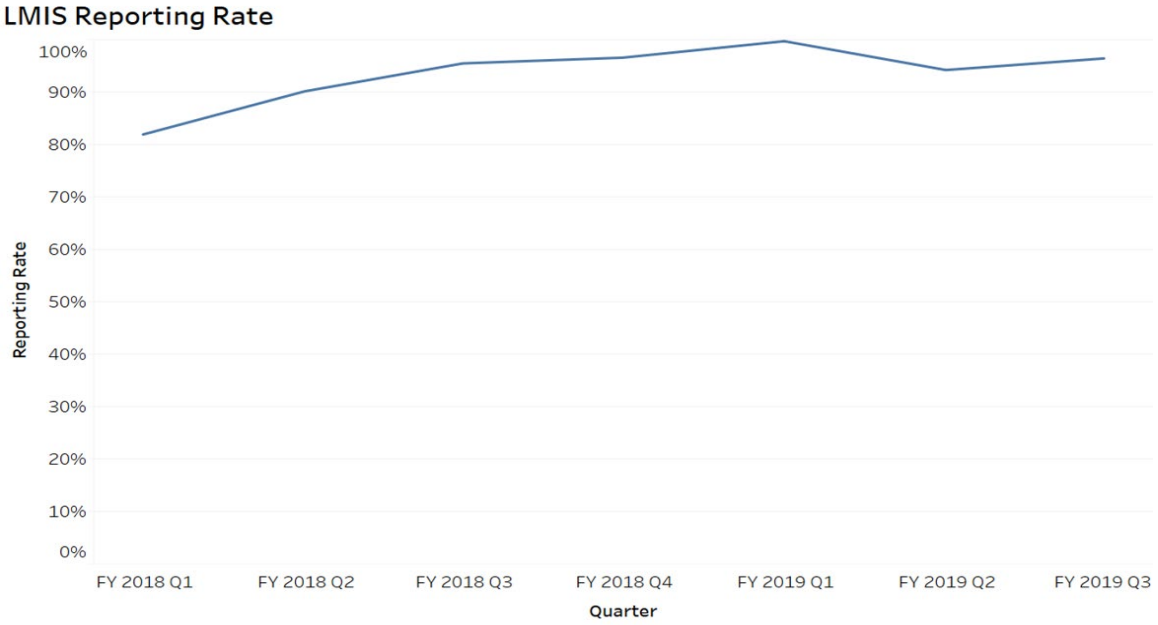
The NMCP is actively monitoring its service and commodity data through DHIS2 and OpenLMIS to ensure alignment between malaria cases treated and quantity of treatments issued to patients. NMCP and partners will work to improve the quality of data from both systems to increase the accuracy of the comparison. PMI and partners will support the NMCP to reduce the discrepancy through the following interventions: technical assistance to the Drug Theft Investigation Unit, quarterly Commodity Accountability and Performance Tracking (CAPeT activity), district-led supportive supervision and data review meetings.

Key Question 4

What are the trends in LMIS reporting rates?

Supporting Data

Figure A45. National Logistics Management Information System (LMIS) Reporting Rate



Conclusion

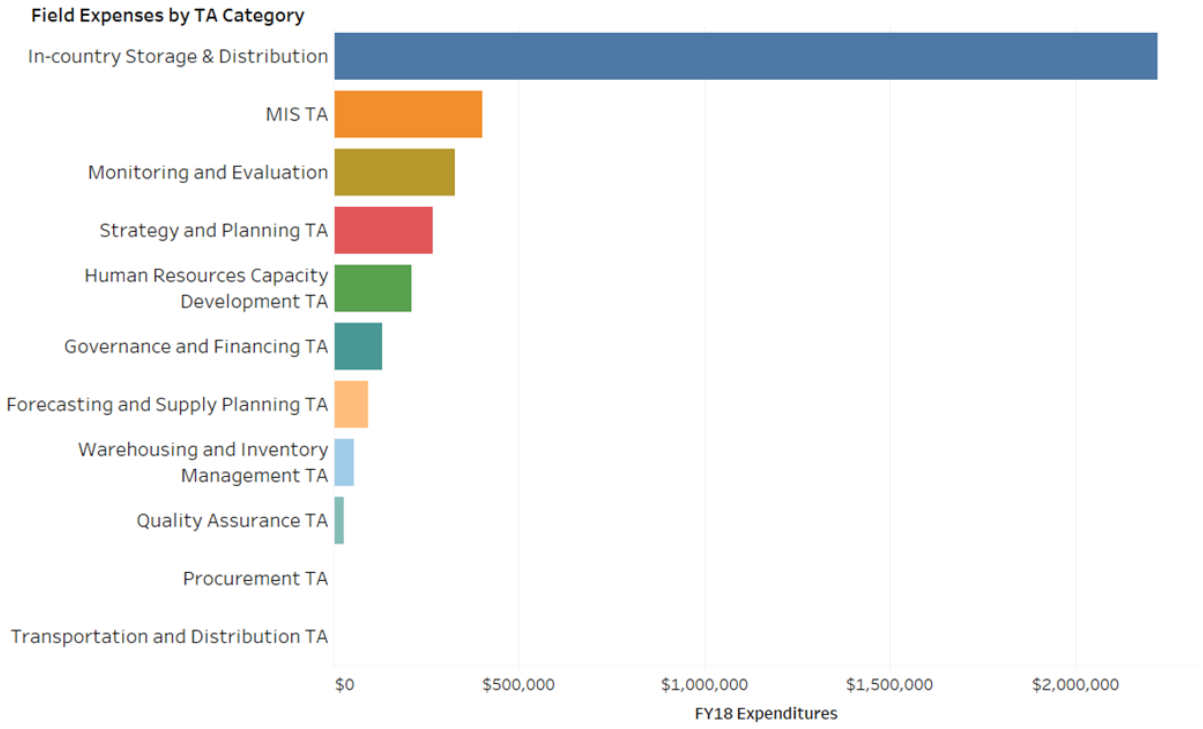
Malawi operates an integrated LMIS system for malaria, HIV, TB, contraceptives and other essential medicines with an over 90% average monthly reporting rate. PMI/Malawi and other stakeholders will continue to support health facilities and MoH to sustain these impressive results and improve the quality of data for decision making.

Key Question 5

What are the main supply chain functions supported by PMI? For areas that are not as strong is there additional investment that PMI should? In areas performing well, is it dependent on PMI/donor funding and so should be maintained?

Supporting Data

Figure A46. PMI Supply Chain Investments in FY 2018



Conclusion

PMI/Malawi will continue to support core supply chain functions such as in-country storage and distribution, the supply chain data management system (Open LMIS), human resource development, forecasting, and supply planning. The PMI-supported parallel supply chain is anticipated to continue through 2020. In 2017, a multi-stakeholder group agreed on a refined Integration Roadmap with detailed activities to strengthen the national supply chain, CMST. Should all benchmarks be achieved according to this revised timeline, phased integration would commence in 2021.

Without PMI and Global Fund support, the supply chain for malaria commodities at this time would be ineffective and unable to meet demands, therefore donor support should be maintained.

Key Question 6

What are the in-country considerations that impact your funding allocation in this category?

Supporting Data

Malawi Health Sector Strategic Plan II (2017-2022) section 2.4.1

Conclusion

Inadequate human resources for health (including supply chain) is a major health system barrier in Malawi. PMI and partners will continue to explore options to address shortage of healthcare workers and develop the capacity of existing staff to deliver quality services.

3.B. SURVEILLANCE, MONITORING & EVALUATION (SM&E)

NMCP objective
To improve malaria monitoring and evaluations systems towards achievement of enhanced data and program accountability by 2022.
NMCP approach
The NMCP continues to focus on improving data quality and use at all levels. The NMCP also strives to ensure timely collation of routine data for internal review and analysis to better understand the root causes of undesirable patterns in the data. Further, the NMCP supports the adoption of innovative problem solving techniques, and provides capacity building, mentorship and supportive supervision to districts and health facilities.
PMI objective, in support of NMCP
PMI supports a broad array of SM&E activities that cut across intervention areas, such as: • Technical support to the NMCP and CMED to support improvements to SM&E systems • Implementation of population-based surveys to measure progress on key malaria indicators • Coordination of the Government of Malawi's efforts in strengthening the HMIS in Malawi.
PMI-supported recent progress (past ~12-18 months)
• Supported the 2017 MIS Data-to-Action workshop, trained NMCP and MoH staff in analysis, use, interpretation, and prioritization of data for decision-making (April 2018). • Supported three regional-level technical dissemination meetings, with multiple zonal and district-level public sector stakeholders from 28 districts including malaria stakeholders and three regional-level meetings with traditional authorities (TAs) to discuss the results of the 2017 MIS (July 2018).

- Supported a data quality workshop, examining alignment and discrepancies between health facility and household survey data (July 2019).
- Supported 1,987 (1,239 M, 748 F) health workers via routine surveillance through data collection, verification, entry, training, supervision, mentorship, and regular data review meetings at the facility and district level. Average reporting rate is 90% with 70% of reports being submitted in a timely manner.
- Supported technical assistance to the MoH's Central Monitoring and Evaluation Division (CMED) to strengthen management and implementation of routine HMIS at the central level.
- Supported CMED to work with districts to analyze data and prepare presentations for Zonal Data Reviews. Conducted two rounds of Zonal Data Reviews in all five Zones.
- Provided technical assistance and support to the development and finalization of the Monitoring, Evaluation and Health Information Systems Strategy (MEHIS) 2017-2022.
- Strengthened reporting tools and systems. Supported configuration of revised malaria reporting forms, and training of trainers to rollout revised HMIS registers and reporting forms.
- Supported the scale up of DHIS2 to 31 lower-level health facilities and trained data management personnel.
- Provided financial and technical support on the Service Availability and Readiness Assessment (SARA) and Service Delivery Indicators (SDI) facility survey (March 2019). Results for SARA are expected by the end of calendar year 2019.

PMI-supported planned activities (next ~12-18 months, supported by currently available funds)

- Support for routine surveillance through training and supervision at the facility and district level, and through regular data review meetings.
- Support to CMED to strengthen management and implementation of routine HMIS at the central level.
- Support quarterly supply chain monitoring of PMI-funded commodities at strategically selected health facilities and the community level; validation of LMIS data; support data quality audits.
- Contribute to 2021 Demographic and Health Survey (DHS), which will be used for monitoring changes in data compared with national population-based household cross-sectional surveys (2017 MIS) and to inform 2022-2027 Strategic Planning.

PMI Goal

To support the NMCP to build their capacity to conduct surveillance as a core malaria intervention using high quality data from both surveys and routine health information systems.

Are you proposing to increase, decrease, or maintain funding allocation levels for this activity? Why? What data did you use to arrive at that conclusion?

PMI/Malawi is planning to slightly increase the funding allocation for SM&E activities in FY 2020 due to the ongoing need to accurately record, report, and use data. Malaria surveillance data can be used to identify areas in need of more intensive interventions, and to measure the impact of interventions. The SM&E activities proposed are important for strengthening the Routine Health Information systems (RHIS) to attain sufficient data quality (e.g., completeness, accuracy, timeliness) to be useful for monitoring and/or planning malaria control activities.

Please see Table 2 for a detailed list of proposed activities with FY 2020 funding.

Key Question 1

Which sources of data are available to inform estimates of intervention coverage, service availability and readiness, and morbidity and mortality?

Supporting Data

Figure A47. Planned Data Collection Activities 2015 - 2023

Source	Data Collection Activities	Year								
		2015	2016	2017	2018	2019	2020	2021	2022	2023
Household Surveys	Demographic Health Survey (DHS)	X	X					(X)		
	Malaria Indicator Survey (MIS)			X						
	Multiple Indicator Cluster Survey (MICS)					(X)				
	EPI survey									
	Micronutrient Survey	X	X							
Health Facility Surveys	Service Provision Assessment (SPA)									
	Service Availability Readiness Assessment (SARA) survey				X					
	Other Health Facility Survey									

Source	Data Collection Activities	Year								
		2015	2016	2017	2018	2019	2020	2021	2022	2023
Other Surveys	EUV	X	X	X						
	School-based Malaria Survey									
	Other (Knowledge, Attitudes and Practices Survey, Malaria Behavior Survey)									
	Other (Malaria Impact Evaluation)									
Malaria Surveillance and Routine System Support	Support to Parallel Malaria Surveillance System									
	Support to HMIS	X	X	X	X	X	(X)	(X)		
	Support to Integrated Disease Surveillance and Response (IDSR)									
	Other (Electronic Logistics Management Information System (eLMIS)	X	X	X	X	X	(X)	(X)		

*Asterisk denotes non-PMI funded activities, x denotes completed activities and (x) denotes planned activities.

Conclusion

There is currently a two-year gap between national surveys which measure parasitemia and anemia. PMI/Malawi is planning for a joint DHS/MIS in 2021 however, the National Statistical Office has mentioned their intention to postpone the DHS to 2022. This may potentially further delay assessment of the coverage of interventions and estimates of malaria prevalence in the country.

Key Question 2

What HMIS activities have been supported in Malawi? What current priorities will be supported with this MOP funding?

Supporting Data

Figure A48. HMIS-Supported Activities

Intervention	PMI-Funded? (X)			Does Global Fund plan to fund this? (X)	Does another donor plan to fund this? (X)
	FY 18	FY 19	FY 20		
Central Level					
Register, tools (e.g. checklists, indicator glossary), job aids (design, indicators, definition of data elements, data dictionary, system support) *[Provides technical support for review ; integration of reporting tools into DHIS2; orientation of data management staff; quantification and coordination of registers procurement and distribution]*.	(X)	(X)	(X)	(X)	
Data quality assessments (separate from supervision – funding for travel to lower levels). *[Provides technical support for training of enumerators, data analysis, report writing and dissemination and implementation of data quality improvement actions, also supported CMED to work with WHO on the integration and functionality of the DHIS2 quality application]*	(X)			(X)	
Program monitoring and technical assistance (funding for travel to lower levels) *[Technical assistance for compilation of annual reports and presentation of program performance reports during zonal and annual reviews]*	(X)	(X)	X	(X)	(X)
Training (funding for central level to conduct training at lower levels, capacity building, i.e. on the job training for central level staff) *[Provided training for Data use training, M&E trainings to district data management staff]*	(X)	(X)	X	(X)	
Human Resources (secondment of person in NMCP for SM&E, office/team for SM&E) *[Seconded a Senior M&E Advisor at the MoHP Central Monitoring and Evaluation Division]*	(X)	(X)	X		
Data Use (analysis, interpretation, visualization (dashboards, bulletins, dissemination/feedback to lower levels, decision-making) *[Trained District level staff in key indicator data bulletin compilation, provided feedback on key program indicator performance to district management teams during Zonal data reviews; and also provided technical at a DHS and routine data triangulation workshop]*	(X)	(X)	X	(X)	

Intervention	PMI-Funded? (X)			Does Global Fund plan to fund this? (X)	Does another donor plan to fund this? (X)
	FY 18	FY 19	FY 20		
Policy guidelines and coordination (updating policies, guidelines, supporting sub-committee meetings, supporting participation in sub-committee meetings) *[Led the development and operationalization of the MEHIS and also supported the Monitoring and Evaluation technical working group meetings]*	(X)	(X)	X	(X)	
External relations/Communications/Outreach (support travel to international meetings and publications) *[Supported CMED/NMCP to make presentations to Global Fund Mission reviews on progress of data management activities, also supported CMED to coordinate and hold Data Collaborative Meetings and also participated in the Global Digital Health Conference]*	(X)	(X)		(X)	
Support to annual operational plans for national malaria program *[Supported and provide technical assistance NMCP strategy reviews focusing surveillance, monitoring and evaluation activities]*	(X)	(X)		(X)	
Desk review to catch "logic errors system" (provide TA to catch logic errors)	(X)	(X)	X		
Admin 1 Level (Region/Province/State). PMI supports activities in [#] regions while Global Fund supports activities in [#] regions.					
Registers (warehousing, printing, distribution)					
Data quality assessments (separate from supervision – funding for travel to lower levels)					
Program monitoring and technical assistance (funding for travel to lower levels)					
Training (funding for Admin 2 staff to conduct training at lower levels, capacity building (i.e. on the job training for Admin 2 level staff)					
Human Resources (secondment of person for malaria SM&E, office/team for SM&E)					
Data Use (analysis, interpretation, visualization (dashboards, bulletins), dissemination/feedback to lower levels, decision-making) *RHIS data reviews and dissemination of survey results*	(X)	(X)	X		
Adaptation of national policy guidelines and coordination (adapting policies, guidelines, supporting sub-committee meetings, supporting participation in sub-committee meetings)					

Intervention	PMI-Funded? (X)			Does Global Fund plan to fund this? (X)	Does another donor plan to fund this? (X)
	FY 18	FY 19	FY 20		
Adaptation of checklists and job-aides					
Participation in national meetings (support for travel costs)					
Support to Annual Operational Plans for Admin 1 Malaria Program					
Admin 2 Level (District)					
Data entry, summary, and transmission (training, re-training, computers, internet, tools) *Supported the MoH to print and distribute registers in the malaria focused districts; in addition, PMI supports the districts with data bundle to support data entry into DHIS2 on a monthly basis.*	(X)	(X)	X	(X)	
Supervision (training, traveling, supervision tools/checklists, create/design system for organized/methodical supervision)	(X)	(X)	X	(X)	
Data validation (data validation activities before monthly data submission - organize health facilities) *Support the district to conduct data verification exercises on a monthly basis to improve the quality of data in DHIS2*	(X)	(X)	X	(X)	
Monthly/Quarterly data quality review meetings (venue, meeting support) *Data review meeting*	(X)	(X)	X	(X)	
Data Use (analysis, interpretation, visualization (i.e. dashboards), dissemination/feedback to facilities, decision-making) *Support the districts with run charts for plotting trend graphs. The charts are pasted in the facilities and also used for review meetings at facility level. In addition, PMI supports the MoH at district level to conduct cluster level data review meetings.*	(X)	(X)	X	(X)	
Human Resources (secondment of person for malaria SM&E, office/team for SM&E)				(X)	
Annual planning with Admin 1 (support travel)					
Facility Level					
Data collection/entry, summary, and transmission (training, re-training, computers, internet, tools)	(X)	(X)	X	(X)	
Supervision of CHWs (training, traveling, administering supervision tools/checklists of community health workers)	(X)	(X)	X		
Data use (analysis, interpretation, visualization (dashboards), dissemination/feedback to CHWs, decision-making)	(X)	(X)	X		

Intervention	PMI-Funded? (X)			Does Global Fund plan to fund this? (X)	Does another donor plan to fund this? (X)
	FY 18	FY 19	FY 20		
Monthly/Quarterly data quality review meetings(support for travel) *Data review meetings*	(X)	(X)	X		
Community Level					
Data collection/entry and transmission (training, re-training, tools)					
Data use (analysis, interpretation, decision-making)					
Monthly/quarterly data quality review meetings (support for travel)					

*PMI/Malawi regularly receives and often fulfills ad-hoc requests to support distribution of registers

Conclusion

There is a need to continue providing support to build capacity in data analysis and interpretation at district and facility levels that will in turn improve data use and feedback. However, health facilities are faced with a limited number of data clerks to support quality data generation and use. Therefore, strengthening accountability measures at district level, by taking advantage of the decentralization process to enforce accountability mechanisms from district to facility levels might have a positive effect on data use and quality improvement initiatives.

Key Question 3

What are the outcomes of HMIS strengthening efforts?

Supporting Data

Figure A49. HMIS Strengthening Efforts 2017 – 2018

		2017	2018
Timeliness	% of reports received on time	48%	64%
Completeness	Confirmed malaria cases for children under 5 years of age was reported in X% of facility-months	87%	91%
Accuracy*	Most recent DQA data	1% **	

Footnotes:

*Source: MoH-CMED Harmonized Data Quality Review Report September-December 2017.

Timeliness is measured at the time the report is entered into DHIS2 and doesn't truly represent the actual time the report was received. (The true percentage as measured at the time report is received could be higher).

**underreporting on confirmed malaria cases data element from the sample facilities*and 6% underreporting on AL dispensed data element from the sampled facilities.

Conclusion

Continued efforts to support CMED to expand DHIS2 in high burden facilities, has the potential to improve reporting rates and data completeness due to reduced volume of data entry. The harmonized data quality assessment activities have long lead time, and as such, have not been completed to date. Many partners, including PEPFAR, are focusing on HMIS, and better coordination among partners is needed. For malaria specifically, the WHO data quality tool in DHIS2 will provide real time understanding of data quality issues in addition to the harmonized data assessments.

Key Question 4

What are the in-country considerations that impact your funding allocation in this category?

Supporting Data

Monitoring, Evaluation and Health Information Systems Strategy (MEHIS) 2017–2022, pages 30-68;

MALARIA STRATEGIC PLAN 2017 – 2022/ Monitoring and Evaluation Framework, pages 39-48.

Conclusion

The main sources of data for monitoring and evaluation of malaria control programs are the HMIS which operates through the DHIS2 platform, program specific data sources, and population-based surveys. PMI will continue to provide targeted programmatic and technical support to the NMCP and CMED to support improvements to surveillance, monitoring, and evaluation systems, and implement population-based surveys to measure progress on key malaria indicators.

3.C. SOCIAL AND BEHAVIORAL CHANGE (SBC)

NMCP Objective
The overall NMCP objective for SBC is to sustain malaria awareness and knowledge at 92.8% of the population and increase the proportion of people who take malaria prevention and control actions to 80% by the end of 2020 as identified by the National Malaria Communication Strategy (MCS, 2015-2020). The strategy is guided by nine general principles which include: 1. Implement social and behavior change communication (SBC)[9] strategies year round 2. Alignment of the MCS with the National Malaria Strategic Plan 3. Build on existing SBC campaigns and implementation structures 4. Sustain gains on malaria knowledge

[9] SBCC is the language used by the NMCP

5. Prioritize increased uptake and utilization of malaria interventions
6. Strengthen coordination within the SBC technical working group
7. Generate data for knowledge, attitudes, and practice
8. Target health workers as key change agents
9. Mobilize resources and support partners

This strategy also recognizes the importance of strengthening partnerships at all levels and building the capacities of all relevant personnel on an ongoing basis.

NMCP Approach

The MCS draws its overall strategic approach from the National Health Communication Strategy (NHCS). The foundation for this approach is the socio-ecological model, which recognizes that behavior is influenced by knowledge at the personal level, by the actions of close individuals like family and friends, by community norms and actions, and at the wider society by environmental structures and factors. Based on this model, the MCS employs three key SBC strategies to achieve its purpose and objective. These strategies include:

1. Advocacy to strengthen policy and systems and mobilize resources through the engagement of political and social leadership and donor and policy makers;
2. Social/community mobilization to increase participation and ownership among community members by engaging social groups like women, youth, and other organized groups, CBOs, and events such as agricultural events, household visits, community events, meetings, and dialogues.
3. Behavior change communication to influence individual behaviors by targeting them through interactive and participatory communication activities including entertainment education using clinic/hospitals, radio, community health workers, and volunteers.

The MCS specifies a focus on four behavioral objectives which include:

1. Increase by 20% the number of Malawians who consistently sleep under and care for their ITNs by 2020.
2. Increase from 31.2% to 75% by 2020 the number of Malawians who take action to treat malaria on the same or the next day from the time of fever onset.
3. Reduce the refusal rate of IRS to less than 1% by 2020 (currently 30% [2018 report for Nkhotakota]).
4. Increase to 60% the number of pregnant women who took three doses of SP during their last pregnancy by 2020 (currently 41% [MICS 2017]).

These behavioral objectives are expected to be realized through the following communication objectives:

- To motivate the consistent use and care of ITNs at the household level while discouraging their use for unintended purposes.

- To promote prompt diagnosis and effective malaria treatment at the nearest health facilities within 24 hours of the onset of fever.
- To promote the acceptance of, and adherence to, post-IRS spray operations.
- To promote the prevention of malaria during pregnancy.
- To promote communities' sense of ownership of malaria commodities.

A Malaria SBC Working Group has been established at the national level and is chaired by the Health Education Section of the Health Education Unit; however, the NMCP serves as the secretariat through a dedicated SBC focal program officer. Malaria implementing partners are asked to host the quarterly meetings on a rotating basis. In accordance with the NHCS, District Health Promotion Working Groups are expected to be in place so as to interpret, implement, and monitor health promotion activities, including malaria behavior change activities.

PMI Objective in Support of NMCP

PMI supports the NMCP in its effort to increase the utilization of appropriate malaria interventions in Malawi to sustain malaria awareness and knowledge at 92.8% of the population and increase the proportion of people who take malaria prevention and control actions to 80% by 2020. PMI provides support for these efforts at the national, district, and community levels. At the national level, PMI provides technical assistance and support for capacity strengthening activities and coordination. For example, PMI supports the *Malungo Zii*, (Malaria Free) slogan developed earlier by the NMCP and its partners as a component within the *Moyo ndi Mpamba, Usamalireni* (Life is Precious, Take Care of It) central campaign platform that is at the core of the NHCS.

At the district level, PMI activities are focused on assisting PMI focus districts to implement quarterly working group meetings and develop communication materials and relevant guidelines to promote the uptake of malaria prevention behaviors. Most of PMI's support for SBC is at the community level in the ten PMI focus districts. Through partnerships with local organizations, PMI supports the NMCP's efforts to expand community level, interpersonal communication activities aimed at increasing correct and consistent ITN use, prompt care seeking, and uptake of IPTp.

PMI-Supported Recent Progress *(Past 12-18 Months)*

- Participatory action media with target audiences to develop prototype concepts and materials on ITN use, case management, and IPTp.
- Supported 12 malaria-related coordination meetings with the NMCP and key PMI and Global Fund implementing partners.
- Facilitated planning meetings with the NMCP/HES and PMI partners for vector control and SBC to integrate behavioral issues in ongoing SBC interventions post-IRS campaign in Nkhotakota.

- Broadcasted six 30-minute radio programs through 18 radio stations (national and community broadcasters) promoting key messages for appropriate use of bed nets, prompt care-seeking within 24 hours of fever onset, adherence to malaria treatment, and uptake of IPTp.
- Conducted 60 interactive community theater performances on malaria messages reaching 24,783 individuals (M-11,168, F-13,615). Performances were conducted in Nkhatabay, Nkhotakota, Salima, Mchinji, Lilongwe, Dowa, Kasungu, Ntcheu, Balaka, Mangochi, Zomba, Mulanje, and Chikwawa.
- Printed and disseminated 218,790 integrated print materials through CHAGS, CTGs, RLCs, and other district and community structures.
- Conducted 37 Community Scorecard (CSC) sessions reaching 240 communities.

Some challenges/bottlenecks have hindered certain aspects of implementation. For example, there has been limited coordination between service delivery and community mobilization teams at the district level. This has limited the ability for SBC activities to overlay with service statistics to demonstrate some level of provider behavior change. To address this challenge, SBC and service delivery partners will harmonize activities in five selected Traditional Authorities (TAs) in districts where partners are co-located.

PMI-Supported Planned Activities *(Next 12-18 Months Supported by Currently Available Funds)*

- Facilitate national level coordination through the Malaria SBC Working Group.
- Support district working group meetings.
- Strengthen community-based SBC activities through continued implementation of interpersonal communication activities, including community challenges and household visits, in the ten PMI focus districts.
- Develop a training module on provider SBC that addresses key components of service communication as a key component of the broader service delivery package. This will also include revision/update of the supportive supervision checklist to include components of service communication.
- Implement the Malaria Behavior Survey (including data collection, analysis and dissemination of results).

PMI Goal

Through the use of social and behavior change interventions and in alignment with a country's national malaria control communication strategy, PMI supports the uptake and correct and consistent use of malaria interventions, thereby improving the overall quality of malaria control efforts that will contribute to reductions in malaria morbidity and mortality.

Are you proposing to increase, decrease, or maintain funding allocation levels for this activity? Why? What data did you use to arrive at that conclusion?
With FY 2020 funds, PMI/Malawi proposes to decrease funding for SBC activities from previous years. This is not, however, reflective of a decreased need or decreased support for malaria SBC activities. Rather, it reflects that the current SBC mechanisms will be ending in 2020 and early 2021. With this funding, PMI/Malawi proposes to continue many of its current SBC activities. Support will remain focused across the three primary technical areas: vector control, case management, and MIP. However, increased emphasis will be placed on community-based efforts around case management (prompt care-seeking) and early ANC attendance, while high-levels of ITN use will be maintained through mass media channels. As the health sector is being decentralized, there will be continued support for coordination of SBC activities and capacity building at the district level. SBC support for vector control will be supported under the vector control partner with TA from the identified SBC mechanism. Please see Table 2 for a detailed list of proposed activities with FY 2020 funding.

Key Question 1

What behaviors is PMI proposing to prioritize through its SBC programming? Will support be geographically targeted or at national scale? What data support this prioritization?

Supporting Data

Figure A50. PMI Prioritizations to Support SBC Programming

Behavior	Target Population	Geographic Focus	Justification
Prompt Care-Seeking for Children Under Age Five	Caregivers of Children Under Age Five	TBD	Per the 2017 MIS, 31% of caregivers sought care for fever within 24 hours. Partner program data also indicate a culture of self-diagnosis and self-treatment (e.g., use of local herbs or locally bought medicines) in some areas of the country.
Early ANC Attendance	Pregnant women	TBD	While Malawi is more than halfway to meeting their national target coverage for IPTp3+ (currently at 40%, target is 60%), additional efforts at the facility level are needed to close the gap on missed opportunities between IPTp2 and IPTp3. However, possibly more important to achieving high coverage is working to ensure that pregnant women make early and frequent ANC visits.

Conclusion

The two priority target behaviors that PMI will address through SBC programming are prompt care-seeking and early ANC attendance. These priority behaviors were selected after review of existing quantitative and qualitative data from household surveys, HMIS, and implementing partner data. As shown under the ITN Section (1.B), the use: access ratio for Malawi has consistently been approximately 80% or higher across the last household surveys. This indicates that the more significant challenge in Malawi is ensuring universal access. As such, there is a greater need to prioritize behaviors related to prompt care-seeking and early ANC attendance. Reported case management data (Section 2.A.) indicate a low percentage of prompt care-seeking and moderate levels of staff trained on case management guidelines (although adherence to guidelines has steadily improved since 2010). Relatedly, data from the MIP Section (2.B.ii) indicate a drop off of IPTp uptake between the second and third doses and through targeted efforts to promote early ANC attendance, this can be improved. Through planned data collection efforts (e.g., the Malaria Behavior Survey and iCCM Operational Research survey results), the extent to which behavioral factors are influencing these outcome behaviors will be ascertained and addressed.

Key Question 2

Given the priority behaviors identified, what data are available to better understand the factors influencing low uptake? What are the behavioral determinants of the prioritized behaviors? Are there gaps in understanding the barriers to uptake?

Supporting Data

Figure A51. Behavioral Determinants Associated with Prioritized Behaviors

Behavior	Key Facilitators	Key Barriers	Knowledge Gaps
Prompt Care-Seeking for Children Under Five Years of Age	■ Fever known as a symptom of malaria ■ Previous experience with severe malaria in household or community	■ Low risk perception of malaria/fever in the early stages ■ Culture of self-diagnosis and self-treatment	More information on barriers and facilitators to prompt care-seeking would help better tailor SBC interventions. This includes quantifying the extent to which factors exist within given communities.

Behavior	Key Facilitators	Key Barriers	Knowledge Gaps
Early ANC Attendance	■ Increased access to information about ANC for women in the early stages of pregnancy	■ Cultural beliefs around pregnancy disclosure during early stages of pregnancy ■ Distance traveled to receive ANC services ■ Lack of provider knowledge of new ANC facility registers	More information on the facilitators to early ANC attendance would help better tailor SBC interventions.

Conclusion

The data available to better understand the factors influencing low uptake are summarized in the table above. However, there is a need to collect more data on the specific behavioral factors for prompt care-seeking and those factors associated with provider behavior for diagnosis and treatment of malaria. Through implementation of the Malaria Behavior Survey and ongoing operational research studies for community delivery of IPTp and expanded integrated community case management, specific determinants for the community and provider will be determined.

Key Question 3

What activities are needed to bolster the country's capacity for SBC? Are these activities needed at the national or sub-national level?

Supporting Data

At the national level, NMCP staff are active participants in the Roll Back Malaria SBC Working Group, the quarterly SBC technical working group meetings, and planning activities with implementing partners. However, there is a need to improve the capacity to assess behavioral factors beyond knowledge to establish appropriate baseline indicators for behavior change and to ensure the proper alignment with the MSP. At the district level, there is a great need to improve capacity to coordinate implementing partners, ensure appropriate design and implementation of activities based on specific behavioral factors, and monitor implementation. For example, implementing partners report that it is easier to coordinate through quarterly technical working group meetings at the national level than it is at the district level. This is a challenge, as there are a number of sub-grantees at the district level that are implementing activities, and yet no strong coordination mechanism. Similarly, district health officers are unaware of all the sub-grantees and which one is where/implementing what for SBC.

Conclusion

There is a need for continued SBC capacity building at the national level with a higher priority of capacity building at the district level. To strengthen the capacity for formative assessments, design, implementation, and monitoring and evaluation of SBC activities, PMI will support:

- Engagement of NMCP staff in the RBM SBC Working Group;
- Alignment of the MCS with the MSP;
- Advocacy with national and district-level leadership in order to increase support for malaria control and prevention efforts;
- District-level SBC planning aimed at increasing sub-national coordination and ensuring the impact of SBC investments; and
- Alignment of SBC implementation efforts with district monitoring and evaluation plans.

Key Question 4

What are the in-country considerations impact your funding allocation in this category?

Supporting Data

A key focus of SBC is ensuring that activities are community owned. This focus aligns well with USAID/Malawi goals to support local capacities and solutions through local implementing partners. With this shift, PMI/Malawi will prioritize SBC activities at the district level.

Conclusion

Where possible, local implementing partners will be used for the facilitation of SBC activities. Planned SBC efforts also emphasize building on the country's existing community health strategy and structures, such as HSAs and existing community-based organizations, to promote desired malaria-related behaviors and strengthen advocacy and demand for quality malaria services within the community and at the health facility level.

3.D. PROGRAM EVALUATION AND OPERATIONAL RESEARCH

NMCP objective

The NMCP's MSP includes the following objectives for SM&E, including OR, and Program Management:

- To improve data quality by increasing accuracy from 7% to 60% by 2022
- To improve program performance in implementing planned MSP activities from 43% to at least 90% by 2022.

Additionally, the NMCP developed The National Malaria Research Agenda, 2017-2021, which lays out priority research questions in the following thematic areas:

- Case Management
- Malaria in Pregnancy
- Vector Control

NMCP approach

The NMCP used evidence maps to identify, organize, and summarize scientific evidence, and to prioritize/rank research priorities outlined in The National Malaria Research Agenda, 2017-2021.

- In the 2017-2022 MSP, the NMCP aims to conduct priority studies guided by the malaria research agenda. The NMCP plans to build capacity of national malaria program officers, monitoring and evaluation officers, district malaria coordinators, and HMIS officers in malaria surveillance, data management, analysis and use for decision making.
- The NMCP conducts malaria data reviews and research dissemination on the following schedule:
    - quarterly district reviews
    - biannual zonal reviews
    - annual research dissemination workshops
- The NMCP plans to develop and manage a website to serve as a forum for sharing the annual malaria bulletin, quarterly and annual reports, program trends, policy documents, data tools, guidelines, and other relevant information. As well as develop and manage a malaria data repository database.
- The NMCP places a high value on evidence generated from research within and outside Malawi by established research institutions. The National Malaria Research Agenda encourages all research institutions to disseminate their findings in a timely manner across a variety of platforms. The NMCP uses such evidence to guide the implementation of the MSP strategies as well as the monitoring and evaluation of the MSP.
- The NMCP prioritizes the role that research institutions play in implementation and evaluation of the MSP to include:
    - participating in appropriate technical working groups;

- providing technical assistance in the monitoring of drug efficacy and insecticide resistance;
- providing technical assistance in the conduct of the Malaria Indicator Survey and other surveys;
- provide technical support in essential studies on case management, vector control, diagnostic services, M&E, BCC as well as malaria in pregnancy.

PMI objective, in support of NMCP

The NMCP has identified a number of research priorities, including:

- Further study on malaria diagnosis in schools to generate more evidence for policy review,
- a Malaria Indicator Survey,
- a Therapeutic Drug Efficacy study (TES), and
- an Economic analysis of Malaria Control/Elimination in Malawi.

The Global Fund is supporting the TES planned for Q4 2019/Q1 2020; PMI will plan to support the next TES in 2021 or 2022 (depending on when the current TES occurs).

- In place of a Malaria Indicator Survey, PMI will contribute to funding the DHS, planned for 2021/22. PMI will consider support for an economic analysis of the burden of malaria in Malawi.
- Regarding school-aged children, PMI/Malawi will be conducting operational research to evaluate the impact of expanding iCCM, to persons over five years of age, on access to care.

PMI-supported recent progress (past ~12-18 months)

- PMI has two on-going studies at present. In conjunction with partners, PMI is supporting a study to assess the efficacy of IPTp-DP compared to IPTp-SP. This will provide valuable data to the program on whether consideration should be given to switching to IPTp-DP.
- PMI is also supporting a study to assess the effects of community delivery of IPTp-SP on IPTp and ANC uptake.

PMI-supported planned activities (next ~12-18 months, supported by currently available funds)

- PMI will continue to support the study of the effects of community delivery of IPTp-SP on IPTp and ANC uptake. In addition, with core funds, PMI/Malawi will undertake a study assessing the impact of expanding the age range of community case management of malaria.

PMI Goal

PMI will conduct OR/PE that helps: to evaluate coverage of population at-risk, quality of intervention(s), and efficiency in intervention delivery, or study reducing remaining malaria

transmission and disease burden, test effectiveness of new or evolved priority interventions and strategies, or explore new metrics and mechanisms to assess the impact of interventions.

Are you proposing to increase, decrease, or maintain funding allocation levels for this activity? Why? What data did you use to arrive at that conclusion?

Given the other current priorities, no additional funding has been allocated to OR in FY 2020. Funding for the on-going studies has been provided from prior year's budgets, and the planned study to assess expanding the age range of community case management is funded with core funds.

Key Question 1

Have technical challenges or operational bottlenecks that require operations research or program evaluation been identified in consultation with the NMCP? How have they been prioritized?

Supporting Data

NMCP has identified surveillance as an intervention, the need to ensure early and frequent access to ANC, and the need to understand and address the high burden of malaria among school-aged children as key priorities.

Figure A52. PE/OR Currently Conducted in Malawi with USG, GF, Multilaterals or Other Major Donors.

Source of Funding	Implementing institution	Research Question/Topic	Current status/ timeline
Gavi, the Vaccine Alliance; the Global Fund to Fight AIDS, Tuberculosis and Malaria; and Unitaid.	Malawi College of Medicine, Malaria Alert Center; Malawi Liverpool Wellcome Trust	Malaria Vaccine Implementation Programme	Implementation on-going
Global Fund to Fight AIDS, Tuberculosis and Malaria	TBD	Therapeutic efficacy study	Implementation to begin once partner contracted and IRB approval obtained
China	Malawi College of Medicine, Malaria Alert Center	Therapeutic efficacy study of artemisinin-piperaquine versus AL	Implementation to begin once PMPB approval obtained
European & Developing Countries Clinical Trials Partnership (EDCTP)	Malawi College of Medicine	IMPROVE trial: assessing alternate regimens for IPTp	Enrollment is nearly completed; follow-up will be on-going into 2020

Conclusion

PMI will continue to support the study of the effects of community delivery of IPTp-SP on IPTp and ANC uptake. In addition, PMI/Malawi will undertake a study assessing the impact of expanding the age range of community case management of malaria.

No additional funding has been allocated to OR in FY2020. Funding for the on-going studies has been provided from prior year's budgets, and the planned study to assess expanding the age range of community case management is funded with core funds.

Key Question 2

In the technical areas covered above, are there specific issues in any of the intervention areas that merit further exploration, in anticipation of establishing intervention strategies that are or could become available in the future that could be applied?

Supporting Data

PMI Malawi will continue to liaise with NMCP and College of Medicine as the Malaria Vaccine Pilot Implementation progresses to determine if all relevant questions will be sufficiently addressed. There are additional operational research questions which exist in Malawi and which PMI would consider supporting should additional funds become available through reprogramming / after the Global Fund contributions have been finalized. These areas of interest include: ensuring women start ANC early to maximize the potential to receive IPTp, comparing cost-effectiveness of IRS vs. PBO and/or G2s, assessing novel means of combating the high burden of malaria among school aged children, and exploring surveillance as an intervention. Cross border and regional initiatives are also of interest.

Conclusion

At present, PMI has not planned any country funding for OR, but will continue to evaluate the needs and available funds.

Key Question 3

What are the in-country considerations that impact your funding allocation in this category?

Supporting Data

Our budget is in flux given that the Global Fund grant for this period has not yet been finalized.

Conclusion

Once it is determined what Global Fund will be covering, PMI support will be reassessed.

3.E. OTHER HEALTH SYSTEMS STRENGTHENING

NMCP objective

The NMCP's MSP includes the following objective for Program Management:

- To improve program performance in implementing planned MSP activities from 43% to at least 90% by 2022.

Although not included in the MSP, the NMCP would like to establish an insectary at NMCP headquarters in Lilongwe in the near future.

NMCP approach

The NMCP's current MSP focuses on the following areas within health systems strengthening:

- human resource capacity
- program planning and reviews
- partnership and coordination
- procurement and supply chain management
- resource mobilization and
- cross-border initiatives

In addition, the NMCP aims to provide adequate infrastructure, equipment and supplies at all levels. Related to achieving case management goals, the NMCP plans to broaden access to testing and treatment services at community level by increasing the number of village clinics.

PMI objective, in support of NMCP Infrastructure

- PMI does not currently support the physical infrastructure goals of the NCMP (e.g. to increase the number of village health clinics).
- Regarding capacity building, PMI supports technical assistance, training, mentorship, and supportive supervision at all levels of the health system. Please see specific intervention areas above for detailed activities.
- LGAP is currently working with eight districts and the Ministry of Local Government to right size district staff on the basis of agreed necessary positions and grading (called the Establishment). This includes moving staff from one district to another as needed.

PMI-supported recent progress (past ~12-18 months)

PMI currently supports Peace Corps Malawi to provide Small Project Assistance, train Peace Corps Volunteers in Malaria, and integrate malaria activities with other Peace Corps activities.
Bottlenecks noted in Program Inventory:

- While the NMCP has sufficient staff, the actual positions are housed within separate districts, thus there is a need to redesign the HR structure of the program so the staff are central-level MOH staff members. Additionally, the Entomologist position on the NMCP is vacant.

● The NMCP offices are located on the other side of town, away from the MoH, and they do not have adequate office space. Limited transportation is available, and some vehicles are not reliable. ● The current internet bundle is inadequate and does not allow the NMCP to access sites that demand more bandwidth such as the PMI Data Lake.
PMI-supported planned activities (next ~12-18 months, supported by currently available funds)
● PMI will continue to provide support to Peace Corps Malawi in the aforementioned areas. ● PMI/Malawi is planning to support activities aimed at addressing the substantial vacancies among HSAs in order to accelerate progress toward the goal of 1 HSA to 1,000 population.