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

Democratic Republic of the Congo

Malaria Operational Plan FY 2020

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TABLE OF CONTENTS

ABBREVIATIONS

ACT	Artemisinin-based combination therapy
ACPR	Adequate Clinical and Parasitological Response
AL	Artemether-lumefantrine
AMF	Against Malaria Foundation
ANC	Antenatal care
AS/AQ	Artesunate-amodiaquine
BMGF	Bill and Melinda Gates Foundation
CDC	Centers for Disease Control and Prevention
CHW	Community Health Worker
CY	Calendar year
DFID	Department for International Development
DHIS2	District Health Information System 2
DHS	Demographic and Health Survey
DP	Dihydroartemisinin-piperaquine
DPS	Provincial Health Directorate *(Direction Provinciale de la Santé)*
DRC	Democratic Republic of the Congo
EPI	Expanded Program for Immunization
FY	Fiscal year
Global Fund	Global Fund to Fight AIDS, Tuberculosis and Malaria
IEC	Information, education, communication
INRB	National Biomedical Research Institute (*Institut National de Recherche Biomédicale*)
IPTp	Intermittent preventive treatment for pregnant women
IRS	Indoor residual spraying
ITN	Insecticide-treated mosquito net
MBS	Malaria Behavior Survey
M&E	Monitoring and Evaluation
MIP	Malaria in pregnancy
MIS	Malaria indicator survey
MoH	Ministry of Health
MOP	Malaria Operational Plan
NMCP	National Malaria Control Program
OTSS	Outreach Training and Supportive Supervision
PARMA	PMI-supported Antimalarial Resistance Monitoring in Africa
PMI	U.S. President's Malaria Initiative
RDQA	Routine Data Quality Assessments
RDT	Rapid diagnostic test
SBC	Social and behavior change

SM&E	Surveillance, monitoring, and evaluation
SP	Sulfadoxine-pyrimethamine
SPA	Service Provision Assessment
TIP	Trafficking In Persons
TVPA	Trafficking Victims Protection Act
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 the Democratic Republic of the Congo (DRC) to end malaria. PMI has been a proud partner of the DRC since 2010, helping to increase population access to an ITN by 14 percentage points and a decrease in child death rates by 56 percent through investments totaling more than $430 million.[1]

The proposed PMI fiscal year (FY) 2020 budget for DRC is $44 million. This Malaria Operational Plan (MOP) outlines planned PMI activities in DRC 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 DRC as well as other donors and partners.

DRC at a glance

- **Geography:** DRC shares borders with nine countries (Republic of Congo (Brazzaville), Central African Republic, Burundi, South Sudan, Uganda, Rwanda, Tanzania, Zambia, and Angola), the last five of which are also PMI focus countries.
- **Climate:** DRC has a warm and humid equatorial climate in the center, and a tropical climate in the north and south. Half of the territory, corresponding to the central basin, is covered with forests. The other half, close to the tropics, is dominated by savannas (plateaus and highlands).
- **Population in 2019:** The DRC population is about 106,588,483, with PMI covering 38% of the population (40,429,706) in nine out of the 26 provinces (DHIS2, 2019 data).[2]
- **Population at risk of malaria:** 100% of the DRC population is at risk of malaria (DRC National Strategic plan 2016-2020).
- **Principal malaria parasites:** The principal malaria parasite is *Plasmodium falciparum,* followed by *Plasmodium malariae* and *Plasmodium ovale* (DRC National Strategic plan 2016-2020).
- **Principal malaria vectors:** *Anopheles gambiae s.s, An. arabiensis* and *An. funestus* constitute the main malaria vectors in DRC. (DRC Insecticide Resistance Management Plan 2017).
- **Malaria incidence per 1000 population:** Malaria incidence in DRC is 177 per 1000 population in 2018 (NMCP 2018 annual report)

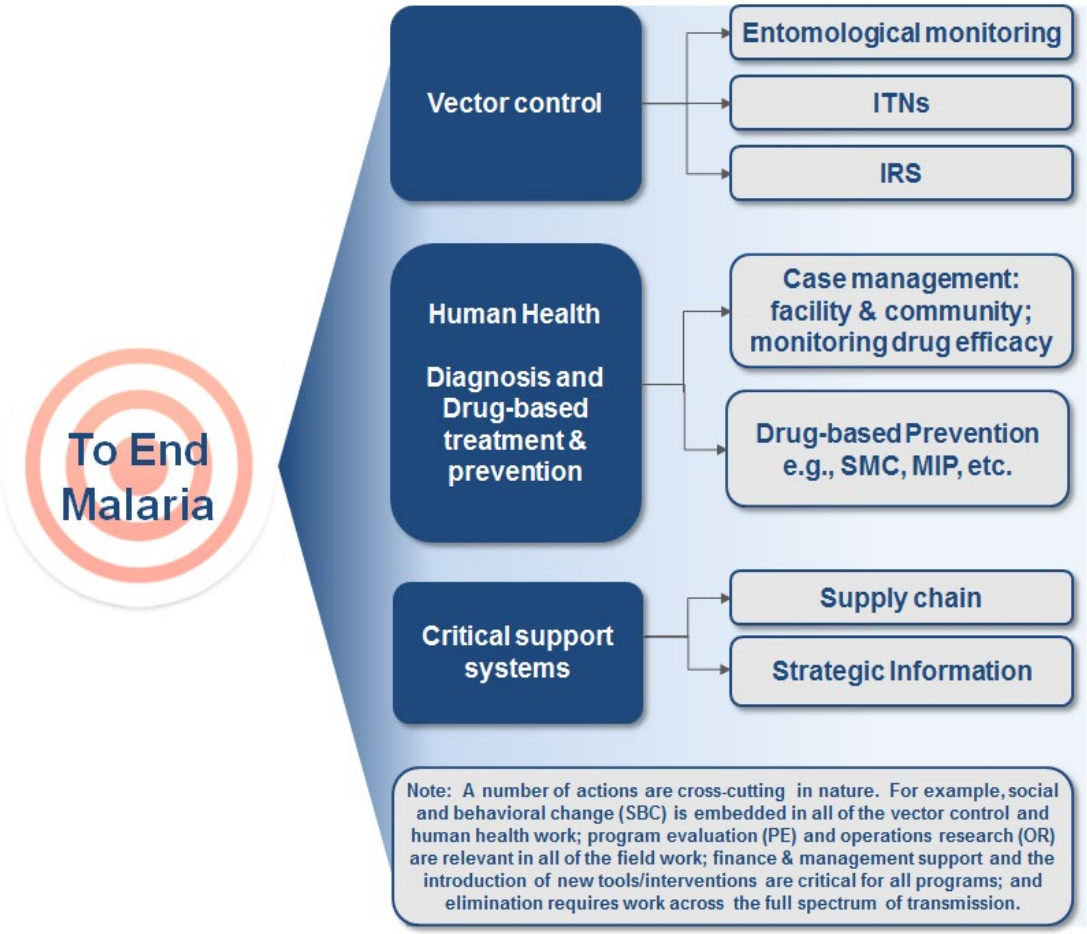
[1] source: 2017/18 MICS

[2] The last official census in the DRC was conducted in 1984. Official reports put the population around 84 million but the DHIS2 system reflects more realistic actual population figures from the lowest administrative levels (health zone).

- **Under-five mortality rate:** The under-five mortality rate is 70/1000 (DRC MICS 2017-2018).
- **World Bank Income Classification & GDP:** DRC is classified by the World Bank as a low income economy. The 2018 GDP was USD496 per capita.
- **Political system:** On December 30, 2018, the DRC organized presidential elections which brought the son of an historical opposition leader in as President, Felix Tshisekedi. However, the majority in the Senate and Parliament is still with the former president Kabila's party.
- **Trafficking in Persons designations, 2016-2018:** 2016: Tier 2 Watch List, 2017-2019: Tier 3 (United States Department of State Trafficking in Persons Report, June 2019) **.**
- **Malaria funding and program support partners include (but are not limited to):**
    - The Global Fund to Fight AIDS, Tuberculosis and Malaria (GF)
    - U.S. President's Malaria Initiative (PMI)
    - The World Health Organization (WHO)
    - UK Department for International Development (DFID);
    - Against Malaria Foundation (AMF)
- **PMI Support of National Malaria Control Strategy:** PMI supports the DRC to achieve the objectives set in its 2016-2020 National Malaria Strategic Plan. PMI supports entomological monitoring and insecticide resistance monitoring to inform the NMCP vector control strategy. PMI supports routine bednet distribution through antenatal care (ANC) and child immunization (EPI) services and mass distribution campaigns in targeted provinces to maintain high levels of bednet ownership and use. PMI also supports school-based bednet distribution in primary schools in between mass campaigns. PMI supports the procurement and distribution of malaria commodities for case management and intermittent preventive treatment for pregnant women (IPTp). This includes ACTs, RDTs, SP, injectable and rectal artesunate, and laboratory consumables for microscopy. PMI also provides capacity building for the NMCP and training and supervision of health workers at all levels. Finally, PMI supports the DRC's health management information system, the supply chain and logistics management information systems and social and behavior change (SBC) activities for malaria prevention and control. (See III. Overview of PMI's support of DRC's Malaria Control Strategy for additional details)
- **PMI Investments:** DRC began implementation as a PMI focus country in FY 2011. The proposed FY 2020 PMI budget for DRC is $44 million; that brings the total PMI investment to nearly $480 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 the DRC's people and institutions – from the central level to communities – 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/DRC will continue to rely on and engage with local partners such as the National Institute for Biomedical Research (INRB) and the Kinshasa School of Public Health.

To accelerate the journey to self-reliance, PMI developed a programmatic inventory to assess the strengths and persistent challenges of DRC'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 DRC is capable of fully financing its development priorities, PMI will work with other partners (e.g., the Global Fund, DFID) to jointly track DRC's funding commitments across the malaria portfolio. President Tshisekedi is particularly

interested in health and has expressed an interest in advancing more rapidly malaria control in the DRC, including mobilizing domestic resources for malaria control and prevention activities.

II. MALARIA SITUATION AND MALARIA CONTROL PROGRESS IN DRC

DRC accounts for an estimated 11 percent of all malaria cases and 11 percent of all malaria deaths in sub-Saharan Africa.[3] Malaria is among the principal causes of morbidity and mortality in the DRC, accounting for 44 percent of all outpatient visits and for 22 percent of deaths in 2018.[4] Approximately 97 percent of the population lives in zones with stable malaria transmission lasting 8 to 12 months per year. The highest levels of transmission occur in zones situated in the north and center of the country. As is the case throughout tropical Africa, the greatest burden of malaria morbidity and mortality falls on pregnant women and children under five years of age. The 2017-18 Multiple Indicator Cluster Survey (MICS) showed malaria parasite prevalence in children 6-59 months to be 38 percent for RDTs and 31 percent for microscopy, which is higher than 2013-2014 DHS estimates (Figure 2). Although the latest MICS data show concerning declines in bednet ownership since the last DHS, the under-five mortality rate has improved as well as IPTp coverage (Figure 5). Additionally, despite increases in malaria cases over the last several years, total malaria deaths in DRC have declined (Figure 6).

Figure 2. Malaria Prevalence, ***Percent of Children Age 6-59 Months who Tested Positive for Malaria by RDT and Microscopy***

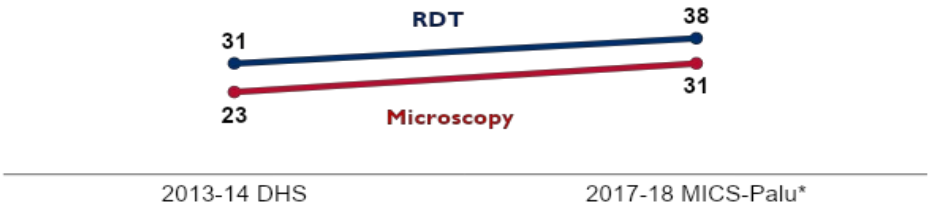
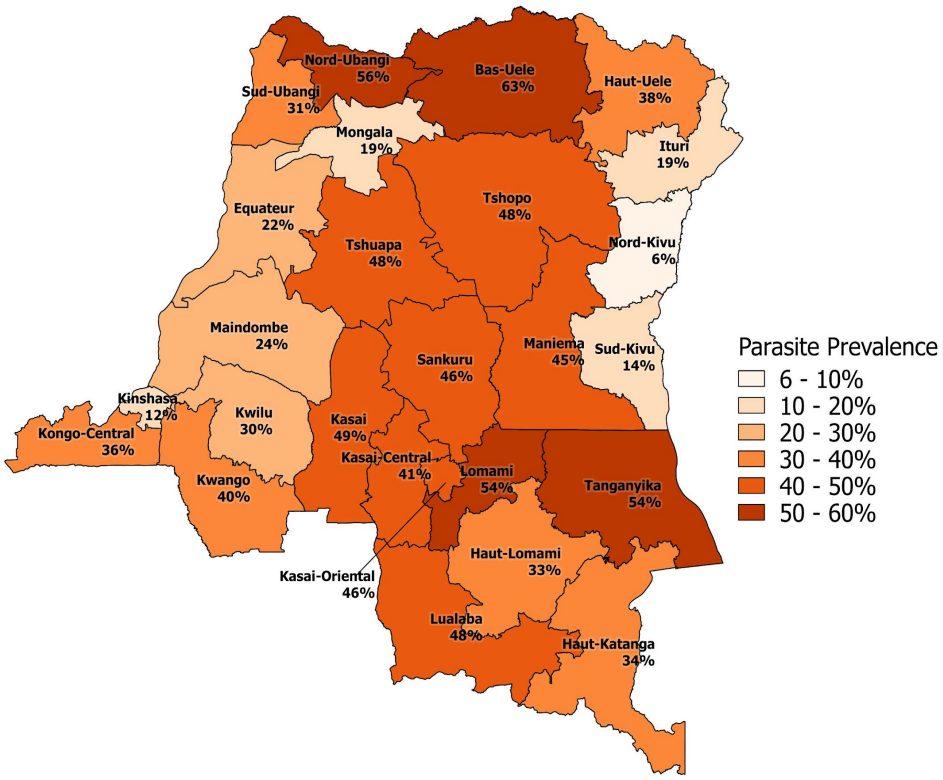


Figure 3. Trends in Prevalence of Low Hemoglobin, ***Percent of Children Age 6-59 Months with Moderate-to-Severe Anemia (Hemoglobin <8.0 g/dl)***

[3] WHO World Malaria Report 2018: https://apps.who.int/iris/bitstream/handle/10665/275867/9789241565653-eng.pdf
[4] Source: NMCP Annual Report 2018

Figure 4. Malaria Parasite Prevalence among Children Under Five Years of Age by Province, *Percent of Children Age 6-59 Months who Tested Positive for Malaria by Microscopy*



Source: MICS 2017 - 2018

Figure 5. Key Indicators for Malaria Prevention and Treatment Coverage and Impact *

Indicator	2010 MICS	2013-14 DHS	2017/18 MICS**
% Households with at least one ITN	51	70	63
% Households with at least one ITN for every two people	n/a	25	26
% Population with access to an ITN	30	47	44
% Population that slept under an ITN the previous night	n/a	50	n/a
% Children under five years old who slept under an ITN the previous night	38	56	51
% Pregnant women who slept under an ITN the previous night	43	60	52
% Children under five years old with fever in the last two weeks for whom advice or treatment was sought[1]	60	55	46
% Children under five with fever in the last two weeks who had a finger or heel stick	17	19	22

Indicator	2010 MICS	2013-14 DHS	2017/18 MICS**
% Children receiving an ACT among children under five years old with fever in the last two weeks who received any antimalarial drugs	2	17	29
% Women who received two or more doses of IPTp during their last pregnancy in the last two years[2]	21	15	31
% Women who received three or more doses of IPTp during their last pregnancy in the last two years[2]	n/a	6	n/a
Under-five mortality rate per 1,000 live births	158	104	70
% Children under five years old with parasitemia (by microscopy, if done)	n/a	31	31
% Children under five years old with parasitemia (by RDT, if done)	n/a	23	38
% Children under five years old with severe anemia (Hb<8gm/dl)	11	6	n/a

*Indicators from Demographic Health Surveys (DHS) and Multiple Indicator Cluster Surveys (MICS) from 2010-2018.

**Only certain preliminary data for the 2017/18 MICS have been made available; "n/a" data will be added once officially available.

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

[2]Note that this indicator has been recalculated according to the newest definition, at the specified number of doses of SP/Fansidar from any source, 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	16,566,209	21,569,754	21,959,428	27,359,710
# Patients receiving diagnostic test for malaria[2]	14,385,906	16,452,476	21,440,703	18,994,861	22,434,962
Total # malaria cases[3] (confirmed and presumed)	11,134,217	12,186,639	15,397,717	15,368,607	18,208,440
# Confirmed cases[4]	9,749,369	11,627,473	15,330,841	15,272,767	16,930,517
# Presumed cases[5]	1,384,848	559,166	66,876	95,840	1,277,923
% Malaria cases confirmed[6]	87.6%	95.4%	99.6%	99.4%	93.0%
Test positivity rate (TPR)[7]	RDT: 71% Microscopy: 60%	RDT: 72% Microscopy: 66%	RDT: 72% Microscopy: 66%	RDT: 73% Microscopy: 65%	RDT: 77% Microscopy: 51%
Total # <5 malaria cases[8]	5,877,247	8,294,504	7,292,929	6,705,608	8,370,719
% Cases under 5[9]	52.8%	68.1%	47.4%	43.6%	46.0%
Total # severe cases[10]	990,968	1,307,655	1,660,226	1,486,440	1,816,040
Total # malaria deaths[11]	25,502	39,054	33,997	27,458	18,030

	2014	2015	2016	2017	2018
# Facilities reporting[12]	16,667	16,680	16,682	16,698	17,089
Data form completeness (%)[13]	82%	85%	93%	95%	89%

Data sources and comments: PNLP Annual Report 2014, 2015, 2016, 2017, 2018, DRC MOP FY 2019.
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 As there may not be a standard definition across countries, please specify if there is such a variable available and the definition that is used; if "severe malaria" is not used or collected but "hospitalized for malaria" is a standard in the country, please insert that label and the relevant data by year.
11 Total # Malaria Deaths Reported: All ages, outpatient, inpatient, confirmed, and unconfirmed.
12 Total # of health facilities reporting data into the HMIS/DHIS2 system for that year.
13 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).

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

The Democratic Republic of the Congo (DRC) was selected as a PMI focus country in fiscal year (FY) 2011. This FY 2020 Malaria Operational Plan presents a detailed implementation plan for the DRC, based on the strategies of PMI and the National Malaria Control Program (NMCP). It was developed in consultation with the NMCP and with the participation of national and international partners involved in malaria prevention and control in the country. The activities supported by PMI fit in well with the National Malaria Control Strategy and Plan and build on investments made by PMI and other partners to improve and expand malaria-related services, including the Global Fund to Fight AIDS, Tuberculosis, and Malaria (Global Fund) malaria grant and the UK Department of International Development (DFID). In 2016, the three major malaria donors in the DRC (PMI, The Global Fund, and DFID) in collaboration with the Ministry of Health signed a malaria donor rationalization. The agreement assigns provinces to respective donors (16 for Global Fund, nine for PMI and one for DFID). In this agreement donors agree to take responsibility for key routine malaria interventions set in the 2016-2020 strategic plan.

The overall objective of DRC's current National Malaria Strategy (2016-2020) is to reduce malaria morbidity and mortality by 40 percent compared to 2015 levels.

Specific objectives to be achieved by 2020 are:

- protect at least 80 percent of the at-risk population with preventive measures;
- test at least 80 percent of fever cases suspected as malaria and treat 100 percent of confirmed cases;
- strengthen the surveillance, monitoring, and evaluation system;
- assure that at least 75 percent of the at-risk population knows modes of malaria transmission, prevention, and treatment; and
- strengthen management of the malaria program

The 2016-2020 National Malaria Control Strategic Plan aligns with PMI strategy and focuses on the following strategies:

- **Vector control,** including distribution of long-lasting insecticide-treated nets (LLINs) through phased mass campaigns and continuous distribution through routine ANC and EPI systems and school and community-based distribution to maintain high coverage levels. In addition, the strategy includes environmental clean-up activities (not supported by PMI) for vector control and targeted indoor residual spraying (implemented in certain mining companies' locations).
- **IPTp** with SP is provided to pregnant women after the first trimester of pregnancy and IPTi and seasonal malaria chemoprevention (SMC) are both included in the DRC National Malaria Control Strategic Plan as potential interventions, but currently not implemented.
- **Case management of malaria** using confirmation diagnostic testing with rapid diagnostic tests (RDT) or microscopy and case treatment with artemisinin based combination therapies (ACT): artesunate-amodiaquine (AS/AQ) or artemether-lumefantrine (AL) for uncomplicated cases and injectable artesunate or quinine for severe malaria cases. The strategy also includes rectal artesunate for pre-referral treatment at community care sites and at first-level health centers. Malaria tests and drugs are free for all age groups in DRC according to national guidelines.
- **Monitoring and evaluation** through routine HMIS with the DHIS2 software, weekly integrated disease surveillance and response, and sentinel surveillance including both epidemiological and entomological surveillance. In addition, household surveys, ad hoc studies, and operational research are to be conducted to respond to specific program gaps and needs.
- **Behavior change communication** implemented through interpersonal and mass communication, in collaboration with the national health communication program, the national school health program, and community based organizations.

- **Strengthening management of the malaria program** through institutional, organization, and managerial capacity building.

There are a few exceptions to this approach:

- This geographic rationalization does not apply to the provincial mass campaigns and school-based distributions.
- PMI supports entomological monitoring in selected sites countrywide regardless of their location.

DRC just launched the High Burden High Impact initiative on November 14, 2019 to align interventions with malaria burden for the ten most affected provinces.[5] The country is also in the process of developing a new National Malaria Strategic Plan to align with the country's National Health and Social Development Plan (PNDS) 2019-2023.

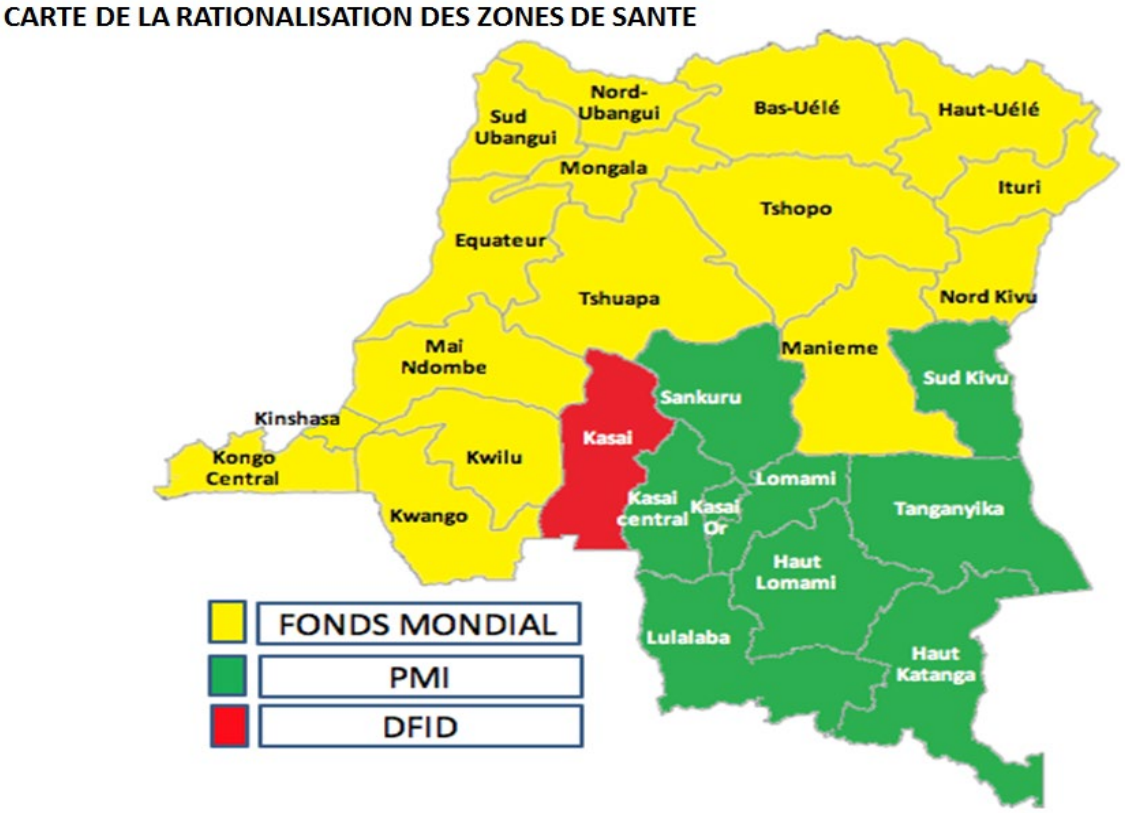
In addition, in March 2017, the major donors signed a memorandum of understanding regarding the interchangeability of malaria commodities within and across regional warehouses, thereby allowing the warehouses to manage the commodities provided by different donors according to the "first expiry, first out" principle and simplifying the process to redistribute products to different zones or provinces when needed.

The nine PMI supported provinces overlap with other USAID/DRC Mission health programming, including maternal and child health and family planning. These nine provinces cover 178 health zones (out of a total of 516) or 38 percent of DRC's total population.

USAID/DRC is preparing for a strategic pivot to Eastern Congo to stabilize and reduce fragility in this corridor. This effort targets Haut Uele, Ituri, Nord Kivu, Sud Kivu, and Tanganyika provinces. PMI is currently working in Sud Kivu and Tanganyika provinces. Global Fund is working in the other three provinces for malaria control and prevention. PMI will coordinate with Global Fund if there are any activities above and beyond the standard package of malaria interventions for these provinces as has been done previously (e.g., ITN distribution in Beni health zone and Butembo Ebola treatment centers).

[5] Data analysis and modeling is ongoing. Once this is completed PMI DRC will know the 10 provinces with the highest malaria burden which will be prioritized under High Burden High Impact.

Figure 7. PMI Intervention Support Map



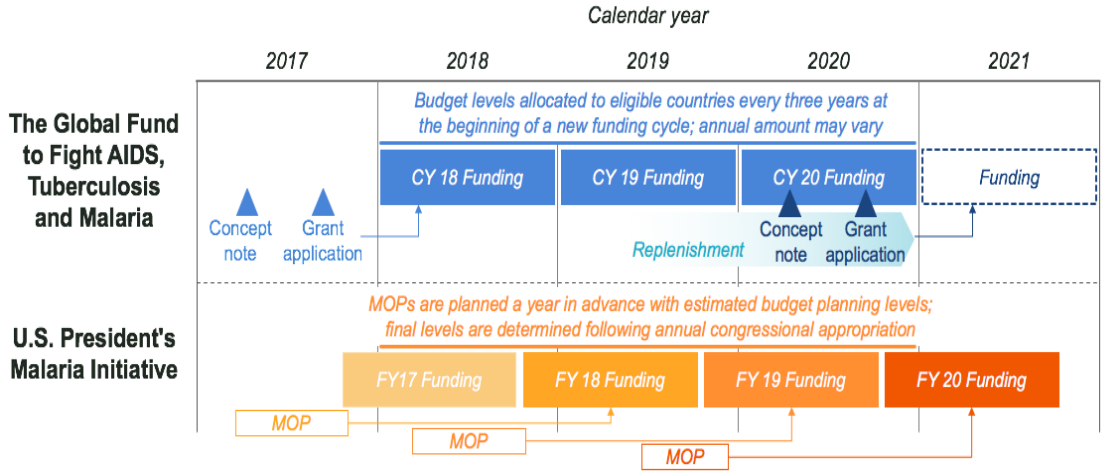
IV. PARTNER FUNDING LANDSCAPE

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).

The illustrative figure below 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, an 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.

Figures 9 and 10 summarize contributions by external partners and host country government in calendar years 2018-20, with the goal of highlighting total country investments. For DRC, data are available for PMI (FY 2017 - FY 2019) and Global Fund (CY 2018-20). As the Global Fund 2021-23 grant funding cycle is not yet underway at the time of this PMI 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.

The Against Malaria Foundation (AMF) has signed an agreement with the DRC MOH for a total of 22 million bednets for provincial mass campaigns (six million bednets for 2018 and 16 million for 2019). This AMF commitment frees up $29 million in funds under the current GF grant which need to be spent before the end of the grant in December 2020. Conversations to extend and grow the DRC AMF partnership into the next Global Fund grant cycle covering 2021-2023 have started on a positive note.

The arrival of a new donor (AMF) and DFID's new health activity design warrant a re-opening of the 2016 malaria geographic rationalization agreement. These discussions have begun and will continue through the next 12 months.

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	$27.0M	$12.3M	$0.8M	$3.3M	$1.2M	$5.3M	**$50.0M**
	Global Fund	$64.8M	$24.3M	$1.1M	$1.0M	$9.3M	$34.3M	**$134.8M**
	Total	**$91.8M**	**$36.6M**	**$1.9M**	**$4.4M**	**$10.6M**	**$39.6M**	**$184.8M**
FY18/ CY19	PMI	$23.8M	$12.5M	$0.7M	$5.0M	$2.2M	$5.7M	**$50.0M**
	Global Fund	$82.8M	$28.3M	$1.5M	$1.0M	$6.8M	$39.7M	**$160.0M**
	Other[4]	-	-	-	-	-	-	**-**
	Total	**$106.6M**	**$40.8M**	**$2.2M**	**$6.0M**	**$9.0M**	**$45.4M**	**$210.0M**
FY19/ CY20	PMI	$17.5M	$11.7M	$1.0M	$5.3M	$2.7M	$5.9M	**$44.0M**
	Global Fund	$32.6M	$11.1M	$0.01M	$1.0M	$6.8M	$33.7M	**$85.2M**
	Other[4]	-	-	-	-	-	-	**-**
	Total	**$50.1M**	**$22.8M**	**$1.0M**	**$6.2M**	**$9.4M**	**$39.6M**	**$129.2M**

Footnotes:

1. Each year's figures represent the FY for PMI and CY for GFATM that most closely align. Global Fund budget data accurate as of July 1, 2019. PMI budget data accurate as of Sept 1, 2019.
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"
4. Pending data from AMF

Note: Categories shown reflect the harmonized financial taxonomy (Levels 1-3) developed by BMGF, Global Fund, 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]		FY 2018/CY19[1]		FY 2019/CY20[1]	
		PMI	Global Fund	PMI	Global Fund	PMI	Global Fund
Vector Control	Procure ITNs for Continuous Distribution	$5.9M	$8.1M	$8.6M	$8.2M	$7.9M	-
	Distribute ITNs via Continuous Distribution	$2.9M	$1.5M	$1.7M	$1.4M	$1.3M	$1.4M
	Procure ITNs for Mass Campaigns	$7.5M	$28.4M	$10.4M	$26.8M	$2.7M	$9.7M
	Distribute ITNs via Mass Campaigns	$9.4M	$14.3M	-	$20.2M	$5.1M	$12.4M
	Other ITN Implementation*	$0.5M	-	$2.5M	-	-	-
	Entomological Monitoring	$0.8M	-	$0.6M	-	$0.5M	-
	SBC for Vector Control[4]	-	$2.5M	-	$12.9M	-	$6.4M
Case Management	Community-based case management	-	$2.6M	-	$0.4M	-	-
	Facility-based case management	-	$6.8M	-	$5.8M	-	$6.2M
	Private-sector case management	-	$0.6M	-	$0.5M	-	$0.2M
	Procure ACTs	$3.4M	$1.0M	$2.1M	$6.0M	$3.3M	$1.4M
	Procure Drugs for Severe Malaria	$3.1M	$0.9M	$2.8M	$2.3M	$2.9M	$0.02M
	Procure Other Diagnosis-Related Commodities	$0.2M	$0.2M	$0.1M	$0.6M	$0.1M	-
	Procure Other Treatment-Related Commodities	-	-	-	$0.3M	-	-
	Procure RDTs	$2.7M	$3.3M	$4.2M	$5.9M	$2.5M	-
	Therapeutic Efficacy	-	-	$0.2M	-	-	-
	SBC for Case Management[4]	-	$1.4M	-	$1.0M	-	$0.8M
	Other Case Management	$2.9M	$4.2M	$3.3M	$0.1M	$2.8M	$0.1M
Drug-Based Prevention[2]	Prevention of Malaria in Pregnancy Implementation	$0.4M	$0.01M	$0.4M	$0.01M	$0.7M	$0.01M

Level 1 Category	Level 3 Category	FY17/CY18[1]		FY 2018/CY19[1]		FY 2019/CY20[1]	
		PMI	Global Fund	PMI	Global Fund	PMI	Global Fund
	Procure IPTp-Related Commodities	$0.4M	$1.0M	$0.3M	$1.3M	$0.3M	-
	SBC for Drug-Based Prevention[4]	-	-	-	-	-	-
	Other Prevention**	-	-	-	-	-	-
Supply Chain[3]	In-Country Supply Chain[3]	$2.2M	-	$4.1M	-	$4.5M	-
	Supply Chain Infrastructure	-	$0.3M	-	$0.3M	-	$0.3M
	Ensuring Quality	-	$0.2M	-	$0.2M	-	$0.2M
	Pharmaceutical Management Systems Strengthening	$1.2M	-	$0.9M	-	$0.8M	-
	Supply Chain System Strengthening	-	-	-	-	-	-
Monitoring, Evaluation & Research	Reporting, Monitoring, and Evaluation	$1.1M	$3.9M	$2.0M	$3.2M	$1.5M	$3.1M
	Program and data quality, analysis, and operations research	-	$4.4M	-	$3.3M	-	$2.8M
	Surveys	-	$1.0M	-	-	$1.1M	$0.9M
	Other Data Sources**	-	$0.03M	-	$0.4M	-	-
	Support for FETP*	$0.2M	-	$0.2M	-	-	-
Other Cross-Cutting and Health Systems Strengthening	Integrated service delivery, quality improvement, and national health strategies**	-	$1.6M	-	$1.5M	-	$1.4M
	Financial management systems**	-	-	-	-	-	-
	Community responses and systems**	-	$0.1M	-	$0.1M	-	$0.1M
	Support for PCV and SPAs*	-	-	-	-	-	-
	Cross-Cutting Human Resources for Health**	-	$3.1M	-	$3.3M	-	$3.3M
	Central and Regional Program management[5]	$0.1M	$0.9M	$0.3M	$1.0M	$0.9M	$1.4M

Level 1 Category	Level 3 Category	FY17/CY18[1]		FY 2018/CY19[1]		FY 2019/CY20[1]	
		PMI	Global Fund	PMI	Global Fund	PMI	Global Fund
	In-Country Staffing and Administration*	$3.5M	-	$3.1M	-	$3.1M	-
	Other Program Management**	-	$28.6M	-	$33.9M	-	$27.6M
	SBC Unspecified[4]	$1.8M	-	$2.3M	-	$1.9M	-
Total		$50.0M	$134.8M	$50.0M	$160.0M	$44.0M	$85.2M

Footnotes:

1. Each year's figures represent the FY for PMI and CY for Global Fund that most closely align. Global Fund budget data accurate as of July 1, 2019. PMI budget data accurate as of Sept 1, 2019;
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";
4. SBC was not historically split in the PMI budget across intervention areas, hence the row “SBC (unspecified)” for the FY 2020 MOP cycle. Going forward, SBC proposed activities will be categorized across vector control, case management, and prevention (new categories).
5. 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, Global Fund, 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	Severe Malaria	SMC-Related	IPTp-Related	Total
FY17/CY18	PMI[2]	$5.9M	$7.5M	-	$3.4M	$2.7M	$3.1M	-	$0.4M	**$22.6M**
	Global Fund[3]	$8.1M	$28.4M	-	$1.0M	$3.3M	$0.9M	-	$1.0M	**$41.8M**
	Other[6]	-	-	-	-	-	-	-	-	**-**
	Total	**$14.0M**	**$35.9M**	**-**	**$4.5M**	**$5.9M**	**$4.1M**	**-**	**-**	**$64.4M**
FY18/CY19	PMI[2]	-	$10.4M	-	$2.1M	$4.2M	$2.8M	-	$0.3M	**$19.8M**
	Global Fund[3]	$8.2M	$26.8M	-	$6.0M	$5.9M	$2.3M	-	$1.3M	**$50.5M**
	Other[6]	-	-	-	-	-	-	-	-	**-**
	Total	**$8.2M**	**$37.2M**	**-**	**$8.0M**	**$10.2M**	**$5.1M**	**-**		**$68.7M**

Year[1]	Funder	ITNs for Continuous Distribution	ITNs for Mass Distribution	IRS Insecticide[4]	ACTs	RDTs	Severe Malaria	SMC-Related	IPTp-Related	Total
FY19/CY20	PMI[2]	-	$2.7M	-	$3.3M	$2.5M	$2.9M	-	$0.3M	**$11.7M**
	Global Fund[3]	$8.8M	$9.7M	-	$1.4M	-	$0.02M	-	-	**$19.9M**
	Other[6]	-	-	-	-	-	-	-	-	**-**
	Total	**$8.8M**	**$12.4M**	**-**	**$4.7M**	**$2.5M**	**$2.9M**	**-**	**-**	**$31.3M**

Footnotes:

1. Each year's figures represent the FY for PMI and CY for Global Fund that most closely align. Global Fund budget data accurate as of July 1, 2019. PMI budget data accurate as of Sept 1, 2019 ;
2. PMI commodity costs are fully loaded, including costs for the ex-works price of the commodity, quality control, freight, insurance, and customs.
3. Global Fund 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 $38.6 million over the CY 2018-2020 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.
5. pending data from AMF.

Note: Categories shown reflect the harmonized financial taxonomy (Levels 1-3) developed by BMGF, Global Fund, 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.

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 the Democratic Republic of Congo 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
Under the NMCP Strategic Plan 2016-2020, the DRC seeks to achieve high ownership and use of ITNs among the general population, targeting at least 80 percent of persons at risk of malaria. The NMCP's national strategy lists IRS as a key vector control method that can be progressively implemented in areas with high levels of malaria (parasite prevalence of 31-55 percent) or in Kinshasa, where parasite prevalence is approximately 8 percent.
NMCP approach
● The NMCP promotes a four-pronged strategy for distributing ITNs: 1) distribution of free ITNs through large-scale integrated or stand-alone campaigns; 2) routine distribution of free nets to pregnant women during ANC clinics, and to children under one year of age at Expanded Program on Immunization (EPI) clinics; 3) continuous distribution in provinces with hyperendemic transmission via schools and the community; and 4) private sector sales of full-cost and/or subsidized nets. ● The campaign strategy for achieving universal coverage—quantified as one ITN per 1.8 persons, in accordance with the WHO guidelines—is to distribute nets as follows: 1) one net to a household of one to two persons, two nets for three to four persons, three nets for five to six persons, four to seven to eight persons and five nets for a household of greater than nine persons; and 2) one net per bed or sleeping space for hospitals and boarding schools. In the absence of information on ITN durability, the NMCP recommends replacing nets every three years. ● To sustain ITN coverage post-campaign, the national strategy includes distribution through routine ANC and EPI clinics and schools. Each pregnant woman should receive an ITN during her first ANC visit, and each child under one year of age should receive an ITN after completing the vaccination series (generally at nine months with measles vaccination). Children in first, third and fifth grades of elementary schools in targeted provinces also receive ITNs through school based distribution. ● Entomological monitoring is important to better understand the distribution of malaria vectors in the DRC, their behavior, and patterns of insecticide resistance.
PMI objective, in support of NMCP
PMI contributes to DRC's vector control malaria strategy in the following ways: ● Distribution of free ITNs through mass distribution campaigns in targeted provinces.

- Continuous distribution of free ITNs through ANC and child vaccination clinics in nine provinces.
- School based distribution in targeted provinces.
- ITN durability monitoring.
- Entomological monitoring, including insecticide resistance monitoring, in selected sites to inform bednet procurement.
- Development of vector resistance management plan.

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

- ITN Campaigns: PMI distributed 6,144,809 ITNs through mass distribution campaigns in three provinces: Kasai, Bas Uele, and Kasai Oriental. PMI also distributed 1,129,718 ITNs through school based distribution in the four provinces of Haut Lomami, Lualaba, Tanganyika and Kasai Central. PMI also distributed around 250,000 ITNs in the health zone of Beni, which was affected by the Ebola outbreak, to reduce malaria fever cases and their contact with health centers.
- Continuous distribution numbers: PMI distributed 3,082,953 ITNs through ANC and EPI services in the nine PMI supported provinces.
- PMI supported SBC activities related to school based and mass distribution campaigns including the creation or reactivation of community animation units to promote bednet use and other malaria and health prevention activities in intervention provinces.
- PMI finished ITN durability monitoring to compare the DuraNet to the DawaPlus® 2.0 in similar environments. As explained under 1.B ITNs (key question 7), the study found that the estimated median survival was 1.6 years for the DawaPlus® 2.0 in (95 percent CI 1.3-1.9) and 2.2 years for the DuraNet in Sud Ubangi (95 percent CI 2.0-2-4) and that insecticidal effectiveness significantly dropped after 24 months for DawaPlus® 2.0.
- In 2019, PMI supported entomological monitoring in 12 sites (seven provinces in DRC). In Tshopo and Tanganyika, longitudinal monitoring investigated seasonal vector dynamics, species composition, annual inoculation rate, biting times, vector susceptibility, and intensity of resistance. The other ten entomological sites gathered information on vector susceptibility and intensity of resistance.
- In 2019, PMI collaborated with the Liverpool School of Tropical Medicine, the Global Fund, and the Against Malaria Foundation (AMF) to develop a study to evaluate the entomological and epidemiological impact of PermaNet 3.0 (deltamethrin+PBO) and PermaNet 2.0 (deltamethrin only) distribution in Sud Ubangi province.

PMI-supported planned activities (next ~12-18 months, supported by currently available funds)
● ITN mass distribution campaigns in the two provinces of Lualaba and Kwango in calendar year 2020. Around 3.5 million ITNs are ordered and will be distributed in these two provinces. PMI has also planned a mass distribution in the province of Kasai Central with approximately 2.9 million ITNs for late 2020 or early 2021. ● Continuous distribution: In calendar year 2020, PMI will distribute 2.9 million ITNs through ANC and EPI clinics in the nine PMI supported provinces - these ITNs will be procured by the Global Fund as a result of the savings generated by the AMF contributions to mass campaigns. ● School-based campaigns: In calendar year 2020, PMI will distribute around one million ITNs in the provinces of Kasai Oriental and Kwilu. In addition, PMI is planning to distribute 1.15 million nets in the four provinces of Equateur, Mongala, Nord Kivu and Nord Ubangi. These nets will be procured by the GF as a result of the savings generated by the AMF contributions to mass campaigns. ● PMI will support all the activities related to these distributions, including storage and transportation, planning, training and supervision, census for both school based and mass campaigns and behavior change communication activities. ● ITN durability: PMI will support durability monitoring of SafeNet and Veeralin brand nets in Tanganyika province. ● Routine entomological monitoring will occur in sixteen sites, including longitudinal monitoring in three sites (Kimpese, Lodja and Inongo). ● The Sud Ubangi study to evaluate the entomological and epidemiological impact of PermaNet 3.0 (deltamethrin+PBO) and PermaNet 2.0 (deltamethrin only) will begin in early CY 2020. This study will compare the impact of PBO versus standard bednets on both epidemiological and entomological indicators, including molecular species identification, ELISAs to detect *Plasmodium* sporozoites, advanced screening of metabolic mechanisms, insecticide resistance testing, and net monitoring.

1.A. ENTOMOLOGICAL MONITORING

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

Do you propose expanding, contracting, or changing any entomological monitoring activities? If so, why, and what data did you use to arrive at that conclusion?

The PMI/DRC team is proposing to maintain similar funding levels for entomological monitoring for FY 2020. Routine surveillance will continue in selected sites based on the upcoming bednet distribution plan. Additionally, both the Sud Ubangi study of PBO versus standard nets and the Tanganyika bednet durability study are multi-year studies and will continue to be funded at the same levels for FY 2020.

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?

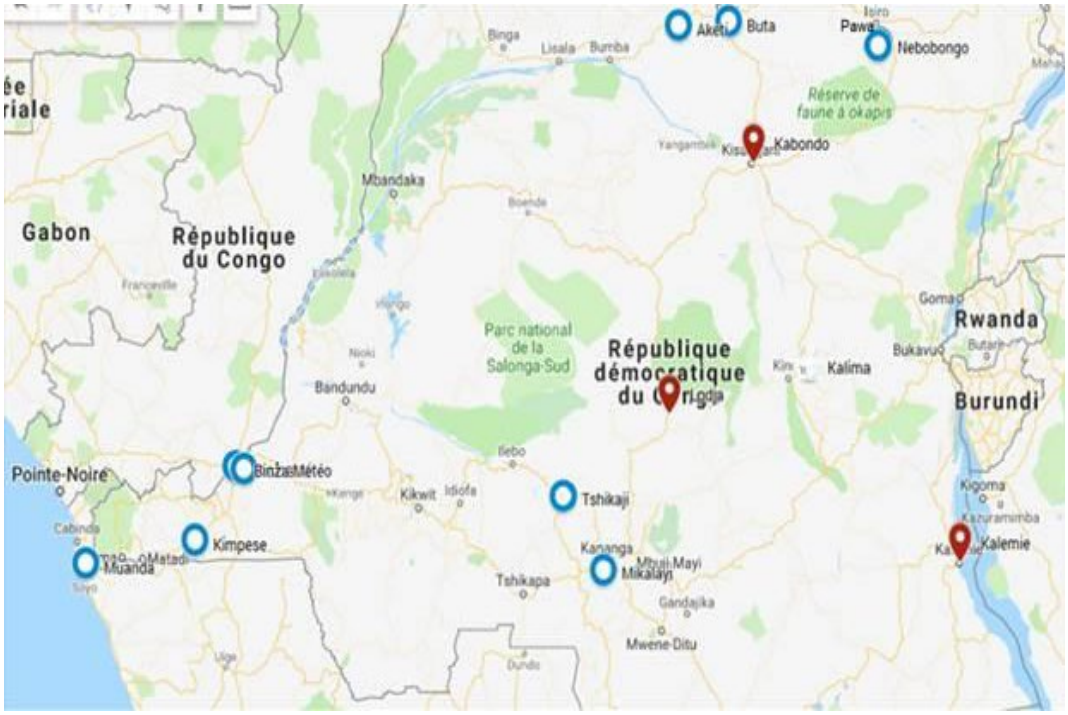
Supporting Data

Figure A1. 2019 Entomological Activities

Province	Total sentinel sites	Activities	Supported by
Tshopo	1	(Longitudinal) - Seasonal vector dynamics, species composition, annual inoculation rate, biting times. - Vector susceptibility and intensity of resistance	PMI
Tanganyika	1	(Longitudinal) - Seasonal vector dynamics, species composition, annual inoculation rate, biting times. - Vector susceptibility and intensity of resistance.	PMI
Kinshasa	2	- Vector susceptibility and intensity of resistance.	PMI
Haut Uele	2	- Vector susceptibility and intensity of resistance.	PMI
Bas Uele	2	- Vector susceptibility and intensity of resistance.	PMI
Kongo Central	2	- Vector susceptibility and intensity of resistance.	PMI
Kasai Central	2	- Vector susceptibility and intensity of resistance.	PMI
Mongala	1	- Vector susceptibility, vector composition and behavior, infectivity.	Global Fund
Ituri	1	- Vector susceptibility, vector composition and behavior, infectivity.	Global Fund
Kasai	1	- Vector susceptibility, vector composition and behavior, infectivity.	Global Fund

Province	Total sentinel sites	Activities	Supported by
Tshuapa	1	- Vector susceptibility, vector composition and behavior, infectivity.	Global Fund
Lomami	1	- Vector susceptibility, vector composition and behavior, infectivity.	Global Fund
Kasai Oriental	1	- Vector susceptibility, vector composition and behavior, infectivity.	Global Fund
Equateur	1	- Vector susceptibility, vector composition and behavior, infectivity.	Global Fund
Maniema	1	- Vector susceptibility, vector composition and behavior, infectivity.	Global Fund
Kwilu	1	- Vector susceptibility, vector composition and behavior, infectivity.	Global Fund

Figure A2. PMI Sentinel Sites for Entomological Surveillance in 2019



Note: The map for vector composition and distribution is not available.

Figure A3. Species identification within the complex *An. gambiae* s.l. over eleven study sites in 2018

Site	*An. gambiae* species			Total	Did not amplify
	An. gambiae s.s.	*An. coluzzii*	Hybrid		
Lodja	65 (65%)	0	0	100	35 (35%)
Kapolowe	88 (88%)	0	0	100	12 (12%)
Kingasani	82 (82%)	4	3	100	11 (11%)
Mikalayi	53 (53%)	8	0	100	39 (39%)
Kalemie	96 (96%)	0	0	100	4 (4%)
Kimpese	99 (99%)	0	0	100	1 (1%)
Pawa	100 (100%)	0	0	100	0
Karawa	100 (100%)	0	0	100	0
Inongo	100 (100%)	0	0	100	0
Kabondo	100 (100%)	0	0	100	0
Katana	100 (100%)	0	0	100	0
Overall	**983 (89%)**	**12 (1%)**	**3 (1%)**	**1100**	**102 (9%)**

Figure A4. Summary of Entomology Bionomic Information for Longitudinal Sites (Kapolowe and Lodja in 2017; Kabondo and Kalemie in 2018)

Site	Major Vector	Minor Vector	Peak Abundance	Preferred Biting Location	Preferred Resting Location	Preferred Host	Peak Sporozoite Rate	Annual EIR
Kabondo	*An. gambiae* s.l.	*An. funestus* s.l.	22:00PM – 02:00AM	Indoor & outdoor	Indoor	Human	0.02	151.2
Kalemie	*An.gambiae* s.l.	*An.funestus* s.l.	22:00PM-24:00PM	Indoor & outdoor	Indoor	Human	0	0
Kapolowe	*An.gambiae* s.l.	*An.funestus* s.l.	24:00PM-01:00AM	Indoor & outdoor	Indoor	Human	0.07	220.8
Lodja	*An.gambiae* s.l.	*An.funestus* s.l.	21:00PM-22:00PM	Indoor & outdoor	Indoor	Human	0.04	240

Conclusion

DRC is a vast country, and given current funding levels, PMI can only support 10-16 routine surveillance sites per year. In 2019, the Global Fund also supported nine entomological monitoring sites for the first time, and plans to continue support for entomological monitoring in the future. PMI/DRC and Global Fund need to continue to be strategic in choosing entomological sites in order to inform bednet procurement and/or provide other useful and timely information, as there is always likely to be a gap in entomological monitoring in DRC.

Key Question 2

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

Supporting Data

Figure A5. Mortality of *An. gambiae* s.l. after Exposure to Permethrin at 1x, 5x, and 10x the Diagnostic Concentration, DRC 2019

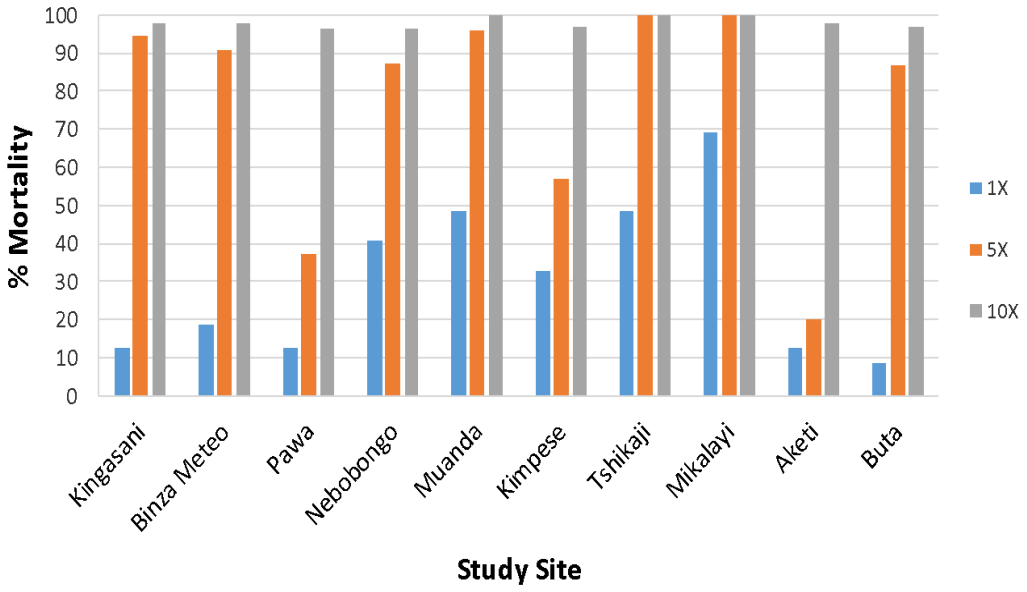


Figure A6. Mortality of *An. gambiae* s.l. after Exposure to Deltamethrin at 1x, 5x, and 10x the Diagnostic Concentration, DRC 2019

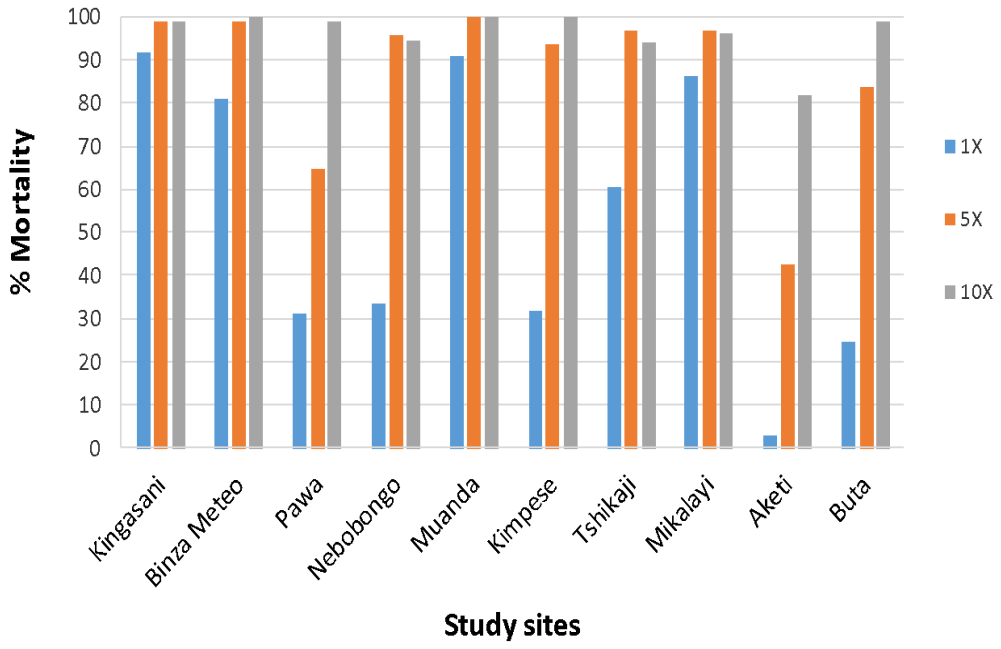


Figure A7. Mortality of *An. gambiae* s.l. after Exposure to Alpha-Cypermethrin at 1x, 5x, and 10x the Diagnostic Concentration, DRC 2019

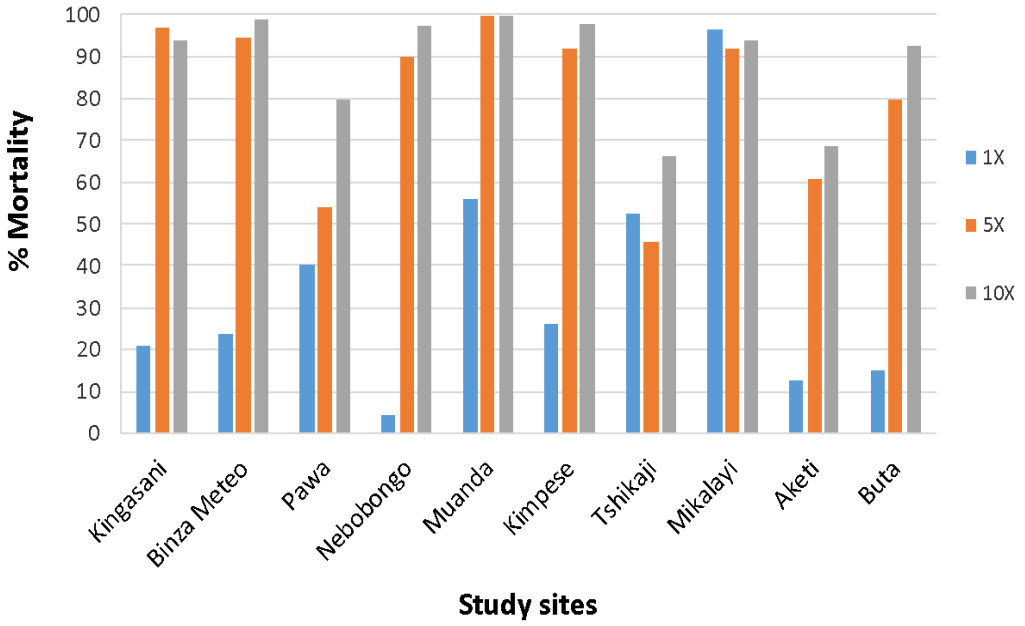


Figure A8. Mortality of *An. gambiae* s.l. after Exposure to the Diagnostic Concentration of Permethrin and Deltamethrin with and without PBO, DRC 2019

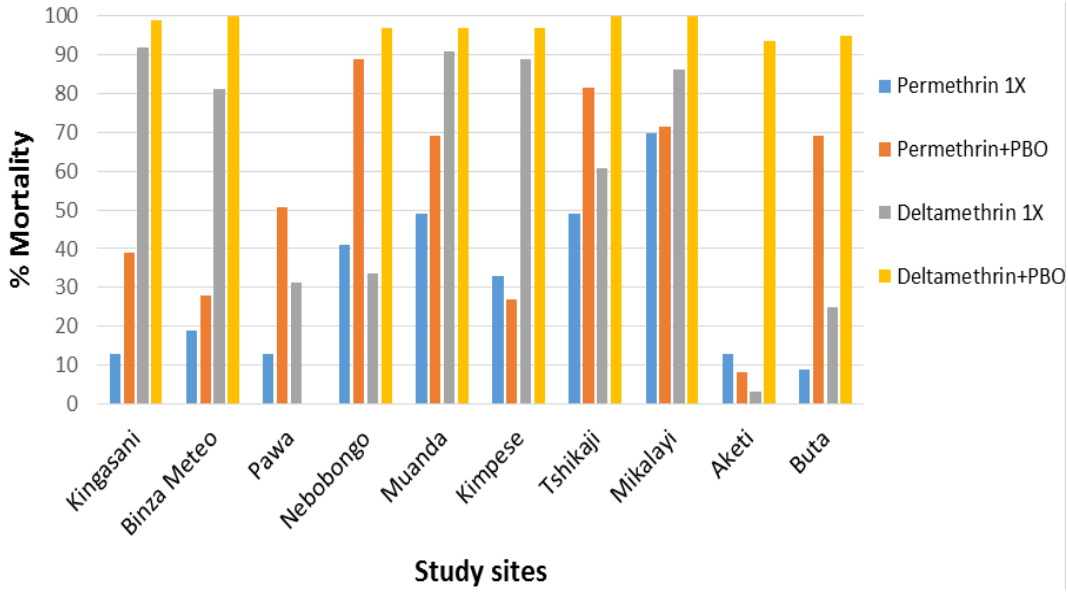
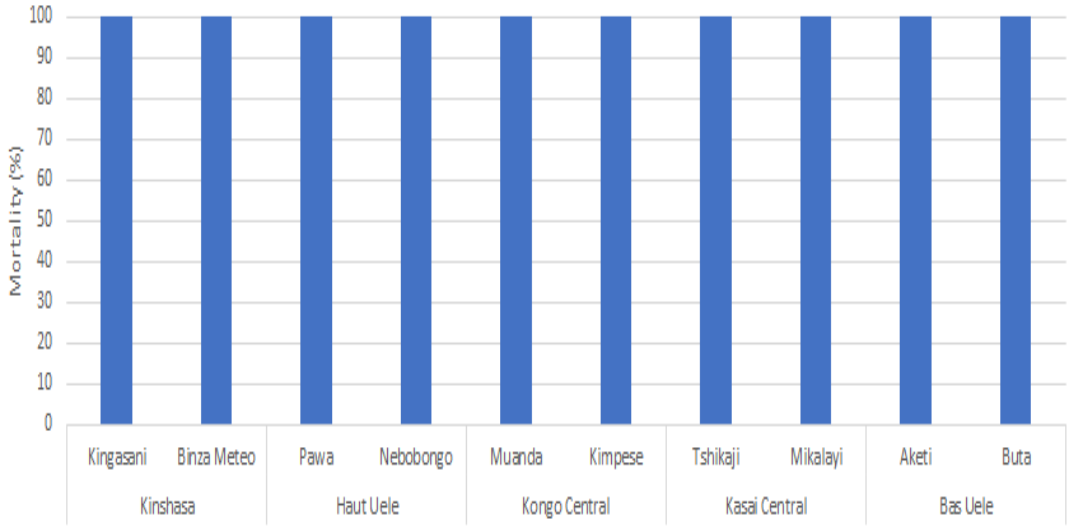


Figure A10. Mortality (72h) of *An. gambiae* s.l. after Exposure to a Provisional Diagnostic Dose of Chlorfenapyr (100µg/bottle), DRC 2019



Conclusion

Pyrethroid resistance was widespread in the five provinces tested in 2019. Mosquitoes were not susceptible to the pyrethroids tested (permethrin, deltamethrin, alphacypermethrin) at the diagnostic dose in any of the sites. Even when the dose was increased to five times the diagnostic dose, susceptibility was only obtained in a few sites, notably with permethrin in Kasai Central (both sites) and Kinshasa with deltamethrin (both sites). Only when the dose of insecticide was increased to 10x did susceptibility become more common, but not in all sites.

This level of pyrethroid is concerning and "next-generation" nets, including PBO and chlorfenapyr in addition to pyrethroids should be considered. Synergist bioassays were conducted with permethrin and deltamethrin, the most commonly procured insecticides used in combination with PBO. The addition of PBO to permethrin did not result in any restoration of susceptibility. The addition of PBO to deltamethrin, on the other hand, resulted in restored susceptibility in 4/10 sites, and an increase to over 90 percent mortality in all other sites, indicating that deltamethrin+PBO would be a better choice than permethrin+PBO in these sites. Finally, there was chlorfenapyr susceptibility in all sites, which indicates that nets with chlorfenapyr might be effective in DRC.

Key Question 3

Are there any other considerations that impact your funding allocation in this category?

Supporting Data

None

Conclusion

None

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). Determine the geographic distributions, bionomics, and insecticide resistance profiles of the main malaria vectors in the country to inform vector control decision-making.

Do you propose expanding, contracting, or changing any ITN activities? If so, why, and what data did you use to arrive at that conclusion?
PMI plans to continue working with the Global Fund and the Against Malaria Foundation (AMF) to maximize the quantity of ITNs available for distribution in the DRC through mass campaigns, routine distribution through ANC and EPI, and school-based campaigns. AMF has committed to procure 16.2 million ITNs for Global Fund managed mass campaigns in CY 2020. This increased AMF commitment will free up Global Fund malaria grant resources that must be used before the end of the grant in December 2020. PMI has worked with Global Fund to find the best way to leverage the strengths of these organizations to ensure the highest levels of coverage through mass campaigns and continuous distribution. PMI/DRC proposes that the Global Fund procure 10.1 million ITNs for PMI managed distribution through routine channels and school-based campaigns 2020 and 2021. In this case PMI would expand the number of school-based distribution campaigns compared to previous years. This leveraging of resources between PMI and Global Fund is essential due to the extremely high procurement and distribution costs in DRC. Please see Table 2 for a detailed list of proposed activities with FY 2020 funding.

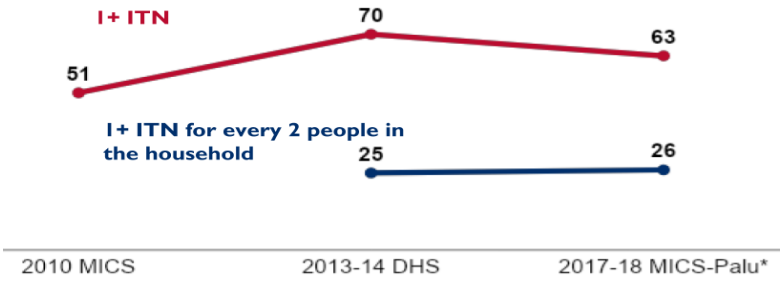
Key Question 1

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

Supporting Data

Figure A11. Trends in ITN Ownership

Percent of households



*Preliminary data

Conclusion

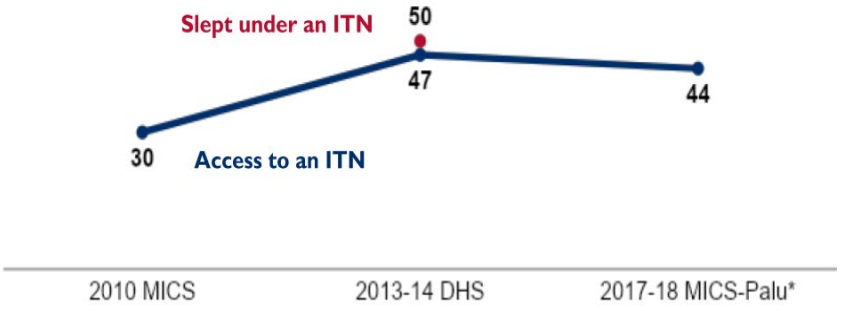
There is a decrease in ITN ownership of at least one net between the 2013-2014 DHS and 2017-2018 MICS. This can be explained by the delay in mass distribution campaigns following the change in GF implementing partner in late 2017. This resulted in the postponement of about four mass distribution campaigns (around 7.9 million ITNs) that were finally distributed just after the data collection for the 2017/2018 MICS survey. But despite this decrease, the percent of households in which everyone has access to a net (i.e., ownership of at least one ITN for every two people in the household) is maintained, albeit low. PMI will continue to implement mass campaigns and routine distribution along with the GF and AMF to increase and maintain access to and use of ITNs by the general population. When the full MICS dataset is available, PMI will work with the NMCP and partners to gain more clarity on access and use patterns for various sub-groups including pregnant women, children under five, and school-aged children. This analysis will help to target SBC activities for net use.

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?

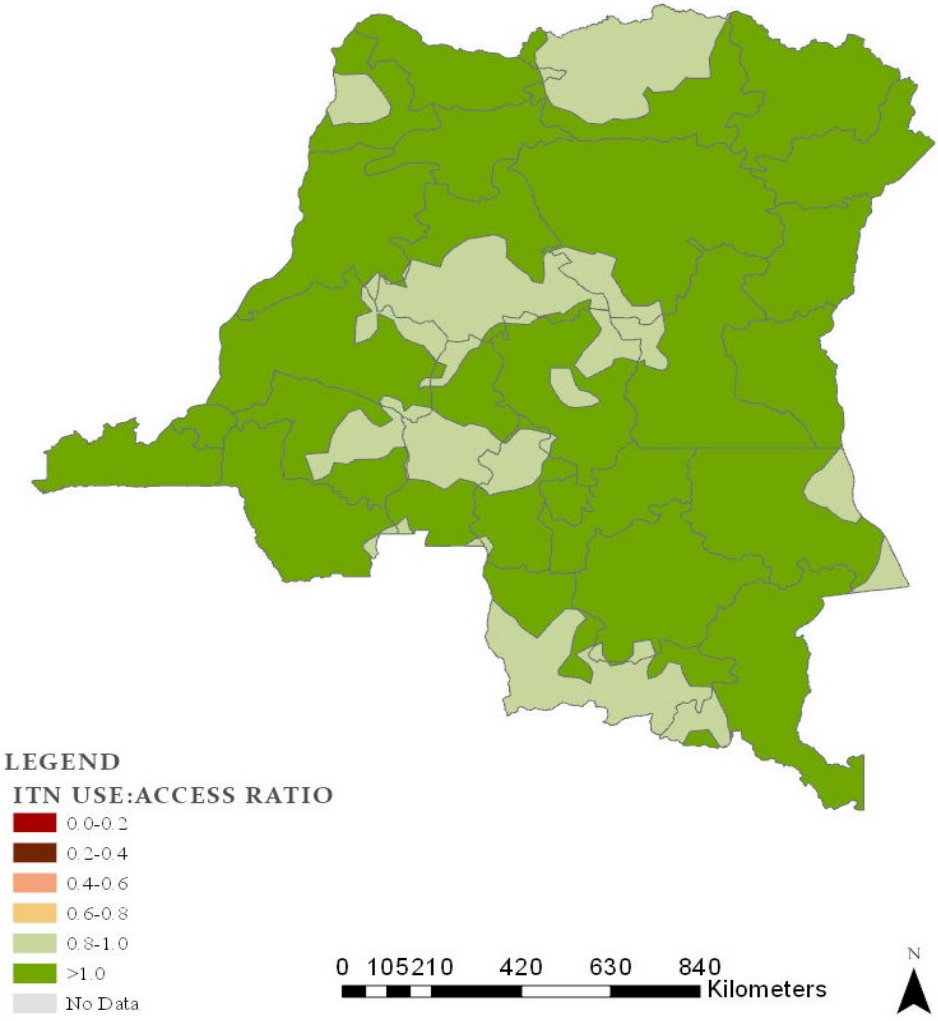
Supporting Data

Figure A12. 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*



*Preliminary data

Figure A13. ITN Access: Use Ratio in the Democratic Republic of Congo



Source: DHIS 20132014

Conclusion

Similar to ITN ownership, ITN access has decreased from 47 percent of people in the 2013-14 DHS, to 44 percent in the 2017-18 MICS due to a delay in implementation of several province-level (rolling) mass campaigns. The MICS data were collected just before GF mass campaigns for 2018 so the data would not reflect these nets that have been distributed. Without a 2017-18 estimate of ITN use among the general population (official data not released at time of MOP writing), it is difficult to draw conclusions about how the use: access ratio indicator has evolved since 2013-14. For pregnant women and children under five, 52 percent and 51 percent, respectively, report using a net. PMI will continue to implement mass campaigns and routine distribution along with the GF to increase and maintain access and use of ITNs by the general population; additional data analyses (once data are available) will guide targeted SBC for sub-groups of pregnant women, children under five, and school-aged children if indicated.

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

Without an updated use: access ratio data point, it is not yet known if and where gaps in use given access are an issue in DRC.

Figure A14. Key Barriers and Facilitators to ITN Use

Facilitator	Type of Factor	Data Source	Evidence
Access	Environmental	2013/14 DHS	The most recent data point for the access: use indicator supports general findings that when people have access to a net in their household, they tend to report using it.
Positive attitudes towards net care may result in improved condition (and thus use) of nets.	Internal	DRC 2019 LLIN Durability Monitoring Report	The report found that in one site (Sub Ubangi), positive net care attitudes were significantly higher than in the other site where net attrition due to wear and tear was much higher.
Barrier	**Type of Factor**	**Data Source**	**Evidence**
Access	Environmental	2013/14 DHS	Much as access increases net use, lack of access limits use
Possibly: heat, discomfort, low perceived mosquito density, negative attitudes towards nets	Internal, social	N/A	Beyond generic findings from other countries related to reasons cited for non-use of nets, there is little DRC-specific evidence to help understand determinants of net use.

Conclusion

Given adequate access to nets, 2013-14 survey data show that there do not seem to be behavioral gaps in net use. With implementation of ongoing rolling mass distribution campaigns complemented by routine channels and school-based distribution, PMI/DRC can expect access to increase further and would anticipate increased use as well. Currently, ITNs are the sole vector control activity in the PMI focus regions. Once updated data are available from the 2017-18 MICS, additional data analyses will guide targeted SBC for sub-groups including pregnant women, children under five, and school-aged children if indicated.

The Malaria Behavior Survey (MBS) is a standardized cross-sectional population-based survey designed to identify the sociodemographic and ideational factors associated with key malaria behaviors. The MBS collects a substantial amount of data on net access, use, and determinants of use within the household. There is a lack of data in DRC on behavioral factors associated with net use and non-use. PMI plans to support implementation of the MBS with FY 2019 funds. These data will allow for refinement of the SBC strategy for net use as well as net care behaviors in strategic PMI focus areas (specific geographic targeting and sampling strategy are not yet defined).

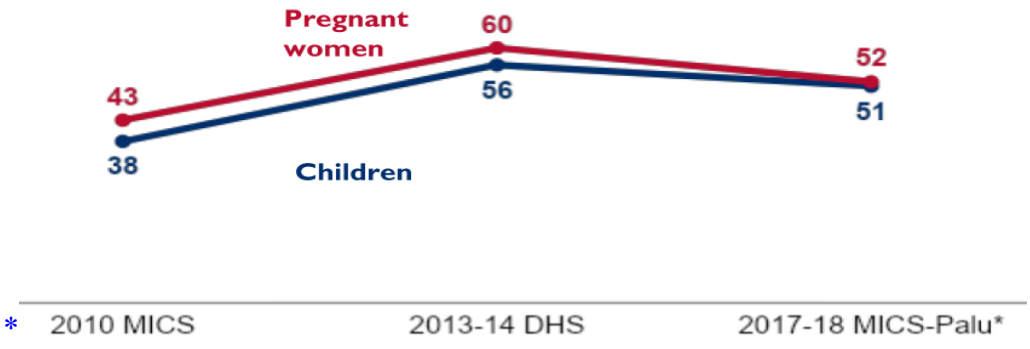
Key Question 4

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

Supporting Data

Figure A15. 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



*Preliminary data

Conclusion

There was a decrease in ITN ownership between the 2013-2014 DHS and 2017-2018 MICS, likely driving the decrease in reported net use for pregnant women and children in the 2017-18 MICS. This decreased ownership can be explained by the delay in mass distribution campaigns following the change in the GF implementing partner in late 2017. This resulted in the postponement of about four

mass distribution campaigns (around 7.9 million ITNs) that were finally distributed just after the data collection for the 2017/2018 MICS survey. The analysis of net use given access based on the 2013/14 data suggest that women of reproductive age and children under five are prioritized when there are insufficient nets in the household to cover all members; this is encouraging. PMI will continue to implement mass campaigns and routine distribution along with the GF and AMF to increase and maintain access to and use of ITNs by the general population. When the full MICS dataset is available, PMI will work with the NMCP and partners to gain more clarity on access and use patterns for various sub-groups including pregnant women, children under five, and school-aged children. This analysis will help to target SBC activities for net use to ensure the most vulnerable populations are using their nets and are prioritized for net use when there are insufficient nets to cover everyone.

Key Question 5

What channels are used to distribute ITNs?

Supporting Data

Figure A16. Bednet Distribution in PMI-Supported Provinces Over Time

Distribution Channel	2015	2016	2017	2018	2019	2020	2021
EPI & ANC	1,881,617	723,003	942,242	1,265,361	2,959,734	2,877,510	2,960,958
Schools				701,657	428,061	1,000,000	3,424,367
Community							
Mass Campaign			1,123,339	1,950,799	2,772,942	6,160,000	2,910,000

These quantities are PMI supported distributions and do not reflect other donors' distributions. Also include projections for 2020 and 2021

Conclusion

DRC is continuing to conduct rolling mass campaigns with a target of distributing ITNs every three years (not always met). Additionally, ITNs are distributed through routine channels (EPI and ANC) and have started to be distributed through schools since 2018. The decrease in 2019 school-based distribution is due to the fact that PMI supported the distribution in only one province compared to distribution in three provinces in 2018. The advent of a new donor (AMF) for mass distribution campaigns frees up to $29.2 million on the GF current grant that will be used to procure ITNs for PMI routine and school-based distributions for CY 2020 and 2021. Thus, PMI funds are and will be used to support distribution and related costs (transportation from port of entry, storage, distribution, trainings, behavior change communications, census etc.) and expand the number of provinces for school based distributions.

Key Question 6

What was the estimated need for ITNs during calendar year? What are the estimated ITN needs over calendar years 2020 and 2021? What volume of ITNs are available from partners and the public sector for the next three calendar years?

Supporting Data

Figure A17. Gap Analysis of ITN Needs

Calendar Year	2019	2020	2021
Total Targeted Population	104,966,663	108,010,696	111,143,006
PMI Targeted Population	40,672,154	41,851,646	43,065,344
Continuous Distribution Needs			
Channel #1: ANC	3,736,813	3,845,181	3,956,691
Channel #2: EPI	3,480,170	3,581,095	3,684,946
Channel #3: School based distribution	1,221,979	2,477,050	3,047,970
Estimated Total Need for Continuous Channels	8,438,962	9,903,325	10,689,607
Mass Campaign Distribution Needs (per province and per year)			
2019/2020/2021 mass distribution campaign(s)			
HAUT-KATANGA		3,426,625	
ITURI		3,469,782	
Kinshasa		5,578,515	
Kongo Central		2,352,304	
KWANGO		1,500,000	
LUALABA		1,750,000	
MAI - NDOMBE		1,199,705	
TSHOPO		1,898,630	
TSHUAPA		976,091	
BAS-UELE			927,103
HAUT-UELE			1,125,704
KASAI			2,845,144
Kasai Central			2,922,237
KASAI ORIENTAL	2,772,942		
KWILU			3,238,202
MANIEMA			1,575,920
SANKURU			1,361,239
Nord Kivu	5,242,425		
Sud-Kivu	4,214,950		
Equateur	1,231,536		
Mongala	1,247,232		

Calendar Year	2019	2020	2021
Nord Ubangi	751,882		
Lomami	2,512,321		
Haut-Lomami		2,318,703	
Tanganyika		1,792,586	
Sud-Ubangi	1,881,219		
Estimated Total Need for Campaigns	19,854,507	26,262,941	13,995,549
Total ITN Need: Routine and Campaign	**28,293,469**	**36,166,266**	**24,685,156**
Partner Contributions			
ITNs carried over from previous year	*4,337,024*	*5,550,396*	*0*
ITNs from MOH	*0*	*0*	*0*
ITNs from Global Fund	19,853,784	15,101,796	7,258,383
ITNs from other donors (AMF - mass campaign only)	6,452,054	3,962,305	16,000,000
ITNs planned with PMI funding	3,201,003	6,160,000	479,324
Total ITNs Available	**33,843,865**	**30,774,497**	**23,737,707**
Total ITN Surplus (Gap)	**5,550,396**	**-5,391,769**	**-947,449**
PMI Province Estimates			
Total Population PMI Provinces	40,672,154	41,851,646	43,065,344
Targeted PMI population for school based distribution	8,648,016	8,413,038	2,928,443
Continuous Distribution Needs			
Channel #1: ANC - PMI Zones	1,447,929	1,489,919	1,533,126
Channel #2: EPI - PMI Zones	1,348,485	1,387,591	1,427,831
Channel #3: School based distribution			
Estimated Total Need for Continuous Channels in PMI Provinces	**2,796,414**	**2,877,510**	**2,960,958**
Mass Distribution Needs			
PMI population targeted for 2018/2019/2020 mass campaigns	11,619,645	5,366,482	
Estimated Total Need for Campaigns in PMI Provinces	6,455,359	2,981,379	0
Total Calculated Need:	**9,251,773**	**5,858,889**	**2,960,958**
Partner Contributions		**4,877,510**	**4,860,124**
ITNs carried over from previous years	2,625,043		
ITNs planned with PMI funding	2,156,000	2,910,000	479,324
Total ITNs Available	**4,781,043**	**7,787,510**	**5,339,448**
Total ITNs Surplus (Gap)	**-4,470,730**	**1,928,621**	**2,378,490**

The population depends on whether it is generally given by the central level (National Health Development Plan) or health zone by health zone (the peripheral level) during quantification exercise.

Conclusion

Following the geographic rationalization signed in 2017, PMI supports routine bednet distribution in the nine PMI-supported provinces. This geographic rationalization does not apply to provincial mass

campaigns and school-based distributions. The below numbers for routine distribution reflect only the needs in PMI-supported provinces.

DRC's 26 provinces are on an approximately three year rotation schedule for mass ITN distribution campaigns. Routine ITN distribution through EPI and ANC continues in between mass campaigns. Though periodic stockouts of routine ITNs affect implementing partners' ability to distribute through these channels. Since 2018 DRC has begun to conduct school-based distribution in the intervening year between mass campaigns. However, resources have not permitted expansive school-based distribution. Between 2018-2019, PMI distributed ITNs through school-based distribution in four provinces. These bednets were targeted to children enrolled in primary school in grades 1, 3, and 5.

In 2019, PMI had sufficient ITNs for routine distribution in PMI-supported provinces. However, PMI is anticipating a stockout of ITNs for routine distribution across all PMI-supported provinces between January - June 2020 due to the FY 2018 MOP order not being placed as a result of the DawaPlus 2.0 situation as well as insufficient funding due to excessive freight costs for DRC, particularly for bednets. Based on the existing interchangeability agreement with the Global Fund, PMI is exploring the possibility to borrow stock from GF to mitigate this anticipated stockout until the GF-procured bednets to cover routine needs in PMI-supported provinces arrive in June/July 2020.

For 2020 and 2021, based on the DRC procurement and distribution costs, the PMI team has determined that PMI cannot afford to cover all the ITN needs through the last mile up to the end beneficiary for PMI-supported provinces. DRC PMI has negotiated with GF to procure ITNs for PMI routine needs to cover from June 2020 through December 2021. Global Fund will also procure 4.4 million ITNs for school-based campaigns, and PMI will cover the distribution costs for these seven provinces (Kasai Oriental, Kwilu, Mongala, Equateur, Nord Kivu, Sud Kivu, Nord Ubangi) in 2020 and 2021.

For 2020 and 2021, PMI has budgeted to support ITN procurement and distribution for mass campaigns in four provinces (Kwango, Lualaba, Kasai Central, and Bas Uele). Global Fund and AMF will support the mass campaigns in other provinces.

Key Question 7

What is the current status of durability monitoring?

Supporting Data

Figure A18. Durability Monitoring Campaigns 2016

Campaign Date	Sites	Brands	Baseline	12-month	24-month	36-month
2016	Sud Ubangi (Ndage Health Zone)	DuraNet	X	X	X	X
2016	Mongala (Binga Health Zone)	Dawa Plus 2.0	X	X	X	X

Figure A19. Key results of Durability Monitoring

Site	Survey and time since distribution (months)	Attrition wear and tear (%)	Remaining nets in serviceable condition (%)	Remaining nets hanging over sleeping space (%)		Optimal insecticidal effectiveness in bio-assay (%)
				Campaign	Other	
Sud Ubangi	12m: 12.0	1.5	90.3	78.1	52.5	83.3
	24m: 21.0	11.7	66.9	82.1	68.4	86.7
	36m: 30.9	25.9	59.0	84.4	81.5	100
Mongala	12m: 12.1	10.1	80.1	45.5	62.7	100
	24m: 20.8	32.8	62.3	68.9	77.5	90.0
	36m: 30.6	47.8	52.1	69.0	80.9	10.0

Conclusion

The durability monitoring project showed that after three years of follow-up among neighboring, rural populations in the provinces of Sud Ubangi and Mongala, DuraNets (150-denier polyethylene) in Sud Ubangi had significantly higher median physical survival compared to Dawa Plus 2.0 (100-denier polyester) in Mongala. The all-cause attrition (i.e., losses for any reason) varied between 57 percent in Sud Ubangi and 76 percent in Mongala.

Bioassays using the WHO cone tests showed optimal insecticidal performance up to the final survey for the DuraNet LLIN brand.

Estimated median survival was 1.6 years for the Dawa Plus 2.0 in Mongala (95 percent CI 1.3–1.9) and 2.2 years for the DuraNet in Sud Ubangi (95 percent CI 2.0–2.4). However, both remained well under the three-year expected median survival.

Most durability risk factors were very similar between the two sites, with some minor differences, such as higher instances of cooking in the sleeping rooms in Sud Ubangi, higher use of finished bed frames in Sud Ubangi, but more foam mattresses in Mongala. The main difference was the much more positive attitude toward net care in Sud Ubangi, in spite of similarly low behavior change communication message exposure at both sites.

Implication on programming: In this DRC environment, it will be preferable to distribute a more durable LLIN, such as the DuraNet or similar brands. While a 2-year distribution cycle has been proposed, this seems not feasible with current funding.

Discussion is ongoing with the NMCP to develop a study design for the next round of durability monitoring in Tanganyika province, where Veeralin (Alphacypermethrin) and SafeNet (Alphacypermethrin) nets will be distributed in late 2019 or early 2020.

Key Question 8

Are there any other considerations that impact your funding allocation in this category? If there is a specific budget line item in Table 2 that is not covered by the above questions, please address here

Supporting Data

- The government of DRC has recently made a commitment to provide free primary school to all children. This will increase the number of children enrolled in primary school and thus increase the cost of these school-based distributions.
- Insecticide resistance data show that PBO nets are needed in DRC.
- Durability monitoring data also indicate that average net lifespan in DRC is closer to two years rather than three years, indicating that there is a need to replace nets more quickly than accounted for in the current distribution calendar. In addition, based on the durability study results and the Dawa Plus 2.0 quality concerns, the DRC Minister of Health has requested that all Dawa Plus 2.0 bednets be replaced after two years instead of three years.

Conclusion

DRC PMI have adjusted the assumptions for school-based campaigns to account for the higher enrollment numbers but will have to monitor as this new policy is rolled out to see if further adjustments to this assumption are needed.

Resistance monitoring data have shown widespread permethrin resistance, so DRC PMI no longer procures permethrin-based nets in DRC. Insecticide resistance data also indicate that PBO nets would be more effective than standard nets in certain provinces. However, based on the current DRC PMI budget and the current PBO ITN unit price, from a financial perspective, DRC PMI cannot afford to shift to PBO bednets. However, AMF does purchase some PBO nets and Global Fund may purchase PBO nets in the future, and PMI/DRC will continue to share our resistance monitoring data with them so informed bednet procurement decisions can be made.

The current DRC PMI budget will not permit mass ITN campaigns every two years. Based on this promotion of net care behavior is a priority intervention. Please see the SBC section for more details.

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 expanding, contracting, or changing any IRS activities? If so, why, and what data did you use to arrive at that conclusion?
No IRS activities.

Key Question 1

What areas are targeted for IRS and why?

Supporting Data

N/A - No IRS activities.

Conclusion

N/A - No IRS activities.

Key Question 2

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

Supporting Data

N/A - No IRS activities.

Conclusion

N/A - No IRS activities.

Key Question 3

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

Supporting Data

N/A - No IRS activities.

Conclusion

N/A - No IRS activities.

Key Question 4

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

Supporting Data

N/A - No IRS activities.

Conclusion

N/A - No IRS activities.

Key Question 5

Are the NMCP and PMI considering withdrawing IRS from any PMI-supported?

Supporting Data

N/A - No IRS activities.

Conclusion

N/A - No IRS activities.

Key Question 5

Are there any other considerations that impact your funding allocation in this category?

Supporting Data

N/A - No IRS activities.

Conclusion

N/A - No IRS activities.

2. HUMAN HEALTH

2.A CASE MANAGEMENT in health facilities and communities

NMCP objective
NMCP case management objectives according to the 2016-2020 National Malaria Strategic Plan: ● Confirm, by microscopy or RDTs, at least 80 percent of suspected malaria cases seen in health facilities and in community care sites; ● Treat 100 percent of confirmed malaria cases according to national guidelines at all levels of the health pyramid, including in the community.
NMCP approach
DRC's national malaria case management guidelines and accompanying training package were revised and validated in April 2017 by the Disease Control Directorate. These updated guidelines largely conformed to WHO guidelines and standards, with the exception of age groups for pre-referral treatment with rectal artesunate, which has since been rectified. For diagnosis, the guidelines state that all suspected malaria cases should be tested for malaria by either microscopy or RDT. Microscopy is to be used at reference hospitals, primarily to monitor patients undergoing treatment for severe malaria and to monitor for treatment failure. RDTs are to be used in peripheral health centers and at the community level; they may also be used at reference hospitals as needed. According to national guidelines, diagnosis with RDTs and malaria treatment is free for patients of all ages. Microscopy incurs a fee and other service provision fees may be applicable for malaria patients (e.g., consultation fees, paracetamol). The guidelines state that each provincial hospital and each health zone's general reference hospital should have a functioning laboratory to conduct microscopy. Currently, all 26 provincial hospitals have a functioning laboratory. For health zones, 393 of the 516 have government-run (i.e., public) general reference hospitals, and the remaining 123 health zones have either a faith-based hospital or a private health facility that serves as the reference hospital for the zone. In theory, all health zone general hospitals have at least one microscope, but current information about whether or not they are functional is not available, including in the PMI zones. DRC's National Malaria Strategic Plan

includes quality control and quality assurance activities for malaria testing and case management. However, activities are currently limited to PMI-supported provinces.

For uncomplicated malaria, the country supports two first-line ACT treatments: artesunate-amodiaquine (AS/AQ) and artemether-lumefantrine (AL). In practice, AL tends to be primarily used in urban areas because patients have more options to obtain it from private pharmacies, while AS/AQ is used in rural areas. In case of confirmed treatment failure by microscopy to both first-line ACTs, the patient should be given dual therapy of quinine plus clindamycin. With the new guidelines currently under review, the NMCP anticipates the adoption of a multi-first-line case management strategy, including PYRAMAX as a third first-line treatment. For severe malaria treatment, injectable artesunate is the first treatment option, followed by injectable artemether or IV quinine. Rectal artesunate is used as pre-referral treatment at peripheral levels, including lower-level health facilities and community care sites, according to the national policy. In 2018, PMI supported the NMCP to align guidelines for pre-referral treatment age groups with the WHO guidelines.

Care-seeking and treatment in the private sector (including non-profit and faith-based facilities, for-profit clinics, pharmacies, and drug shops) is widespread. According to the 2013-2014 DHS, among children with fever, 49 percent report seeking care in the public sector and 47 percent in the private sector. The non-profit/faith-based facilities often function much like the public-sector facilities in that they report into the routine health information system and abide by the national policies. But there are important differences in treatment availability in public and private outlets. A research project supported by ACTwatch from 2013 to 2015 in Kinshasa and Katanga provinces included representative “outlet surveys” that assessed availability of malaria diagnostics and treatment at service delivery points, including public facilities and CHWs, private non-profit and for-profit facilities, regulated pharmacies, and unregulated drug shops and retailers. The last survey in 2015 found that drug shops represented 69 percent of outlets in Kinshasa and 59 percent in Katanga. In Kinshasa, 87 percent of public sector outlets stocked quality-assured ACTs; in Katanga 92 percent did. In the private sector, however, only 22 percent of private outlets stocked quality-assured ACTs in Kinshasa while 53 percent stocked them in Katanga.

At the community level, integrated community case management (iCCM) is provided at community care sites (*sites de soins communautaire*). According to national guidelines, two volunteer community health workers (*relais communautaire*) are identified for each community care site. One CHW is responsible for providing diagnosis, treatment, and referral services while the other focuses on health promotion, communication, and community mobilization. CHWs are unpaid. Criteria for selection include a minimum level of education as well as having an established source of income, separate from their unpaid health activities. Both CHWs are to be trained approximately every two to three years in malaria, pneumonia, and diarrhea diagnosis and treatment; this includes administration of RDTs, ACTs, and rectal artesunate for severe cases. Historically USAID has supported procurement of ORS/zinc and antibiotics for iCCM activities. In the last 6-12 months there are shortages of these products for iCCM due to delayed procurements. Orders are in place and expected in June 2020.

With respect to community-based service provision, across DRC's 26 provinces, currently 402 out of 516 health zones have 6,968 functional community care sites which cover a population of 10,179,461. The CHWs in DRC provide an integrated package of services in their communities. The National Guide for Implementation of Community Care Sites (2016) defines the package of services to include referral of severe malaria cases and treatment of uncomplicated malaria cases in children under five. It also allows that treatment of malaria in children over five years and adults can be provided as needed. Currently in the PMI zones, malaria treatment is targeted only to children under five. CHWs do not receive monetary compensation for providing services, but some incentives like bicycles and t-shirts as distinguishing signs.

PMI objective, in support of NMCP

PMI supports the country's malaria case management strategy through procurement of essential diagnostic and treatment commodities, and by providing training and supportive supervision for various cadres of health workers, including lab technicians, facility-based health workers, ANC providers, and community health workers. PMI also supports a microscopy quality assurance program and therapeutic efficacy studies to monitor antimalarial resistance, and at the central level, supports the case management technical working group to convene regular meetings.

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

- Supported the NMCP to implement the national malaria microscopy quality assurance system using the national archive of malaria slides (NAMS) to execute training and external quality assurance in laboratories of supported provinces, and established a cadre of 146 national and regional malaria microscopy experts.
- Conducted outreach training and supportive supervision in 103 urban health facilities, trained 536 health workers in malaria diagnosis and case management and supported 2,990 community care sites, including refresher training for 170 CHWs.
- Procured and distributed 7.1 million RDTs, 5.8 million ACTs, 873,957 vials of injectable artesunate, and 112,088 rectal artesunate suppositories to reference hospitals, health centers, and community care sites in 178 health zones.

There were some notable challenges that slowed case management activity implementation over the last 12-18 months, including delays in project start-up for the new integrated health service delivery mechanism. This challenge was compounded by the trafficking in persons restrictions that created general bottlenecks to implementation of USG activities in DRC over the last year.

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

PMI continues to focus on:

- In-service training and supportive supervision of facility-based and community-based health workers. Special emphasis will be placed on supporting expansion of community care sites,

strengthening supportive supervision, and training for pre-referral treatment with rectal artesunate.

- Support to the NMCP to revise the national case management guidelines and training materials.
- Training and development of additional national and regional microscopy experts in the nine PMI-supported provinces to expand the microscopy QA program, and assist in maintaining WHO laboratory technician accreditation.
- Procurement and distribution of RDTs, ACTs, injectable and rectal artesunate to diagnose and treat uncomplicated and severe malaria cases at reference hospitals, health centers, and community care sites in 178 health zones.
- Support for the next round of TES together with the NMCP and other donors.
- Explore updating pre-service malaria prevention, diagnosis, and case management training curriculum for doctors and nurses.
- Support SBC activities for case management.

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 expanding, contracting, or changing any Case Management activities? If so, why, and what data did you use to arrive at that conclusion?

Planned activities for PMI support to case management in DRC will not change significantly from FY 2019 approved activities. PMI will continue to focus on strengthening case management in health facilities and community care sites to ensure adherence to national directives and high quality service provision. Recognizing that traditional training and supervision approaches may not yield the improvements PMI hopes to see, PMI/DRC proposes piloting a continuous quality improvement approach in Haut Katanga province with FY 2020 funds. PMI will also focus on expanding access to care through continued expansion of community care sites.

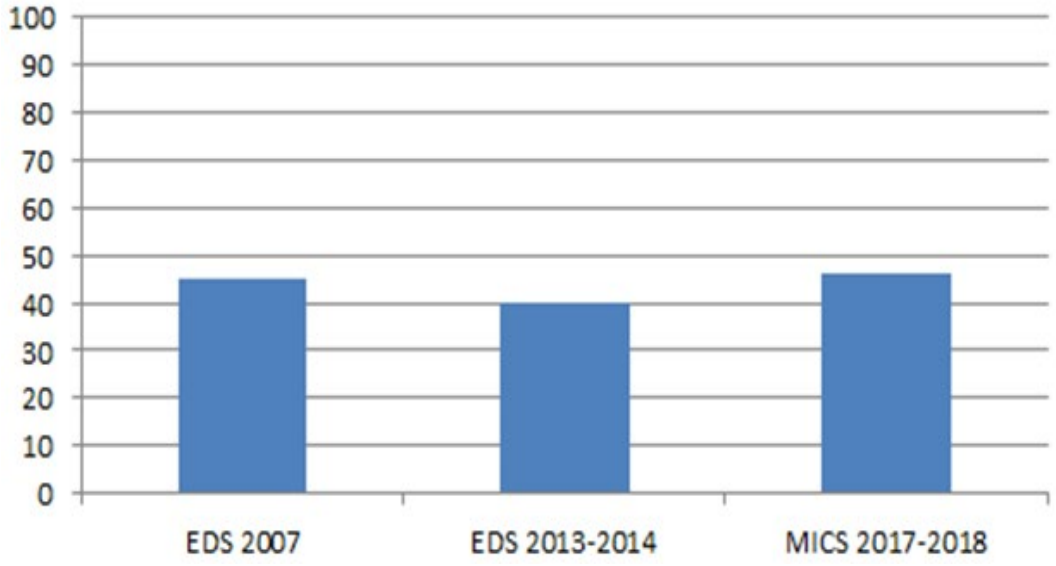
Please see Table 2 for a detailed list of proposed activities with FY 2020 funding.

Key Question 1

What is the status of care-seeking?

Supporting Data

Figure A20. Trends in Care-Seeking for Fever Among Children Under 5 Years of Age with Fever in the Two Weeks Before the Survey for Whom Advice or Treatment Was Sought



Conclusion

Care seeking behavior reflected in household survey data shows slight variations between 2007 and 2017-18, but overall remains largely unchanged over the years. There is a need to focus efforts to generate demand for case management services, improve the quality of service provision, and ensure commodity availability at service delivery points. Note that data on prompt care-seeking (i.e., same, or next day) were not available from the preliminary MICS 2017-18 results at the time of MOP writing.

Key Question 2

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

Supporting Data

Figure A21. Key Barriers and Facilitators to Care Seeking

Facilitator	Type of Factor	Data Source	Evidence
Availability of ACTs and service providers trained in malaria diagnostics and treatment	Environmental	Service Provision Assessment (SPA 2017-2018)	SPA 2018 results show that 84% of diagnosis and / or treatment service had ACTs, and 81% had trained providers.[1]

Barrier	Type of Factor	Data Source	Evidence
Lack of access to services, particularly in remote areas	Environmental	National Health Development Plan (PNDS 2016-2020) Breakthrough Action Malaria Situation Analysis (2018)	Only 30% of the population has access to health facilities; only 24% of DRC needs in iCCM are covered, (28% in PMI supported provinces). The BA situation analysis cites a distance-decay relationship in use of facility-based health services (i.e., studies [not specific to DRC] find that as much as 90% of users are located within a 2-mile radius of a health facility). A 2013 DRC study estimated that 74% of the population lived over 5 km from a facility.
Patient preference for traditional treatments or self-medication	Individual	Breakthrough Action Malaria Situation Analysis (2018)	The BA situation analysis cites this factor as a potential barrier based on general findings (i.e., not specific to DRC). These patient preferences may have to do with financial barriers. The 2013 DHS data estimated that 52% of households in the lowest wealth quintile choose traditional or self-treatments compared to 24% of higher wealth quintiles.
Frequent commodity stockouts for severe malaria treatment (injectable and rectal artesunate)	Environmental	Service Provision Assessment 2017-2018	Injectable artesunate was available in 22% of facilities; rectal artesunate was available in only 5%.

Footnote:

[1.] other program data suggest substantial needs for training providers on *updated* guidelines. While listed as potential facilitator in this table, there are clear gaps in training and stock availability suggested by other data sources cited elsewhere in this MOP.]

Conclusion

These data suggest that access to quality health service delivery is an important determinant of care-seeking practices among the target population. Distance from facilities is an obvious barrier, and the condition and quality of available care is also an important factor. If stockouts of free commodities are a common phenomenon and patients are forced to pay for alternative unsubsidized therapies (e.g., quinine), they will be more likely to find cheaper treatment options closer to home. When traditional treatments fail or sub-standard drugs are used for self-medication, uncomplicated malaria is more likely to evolve to severe disease. Based on recent SPA data, facilities have trouble keeping severe malaria treatments in stock, putting patients at risk for severe consequences. Given the challenging geography and infrastructure in DRC, ensuring that communities have access to community care sites, and that those sites are adequately stocked to treat is a logical programmatic response.

However, beyond access issues, there are likely additional individual/social barriers that hinder prompt care-seeking, such as preference for self-medication or traditional treatments; this may also be related to economic barriers, another form of access. These determinants, and how they may be intertwined with structural issues around distance to services and perceptions of the quality of service delivery,

have not been adequately studied in DRC. More data are needed to understand the drivers of care-seeking and what interventions are needed beyond increased access at the community level. PMI plans to support additional data collection around determinants of care-seeking in the coming year.

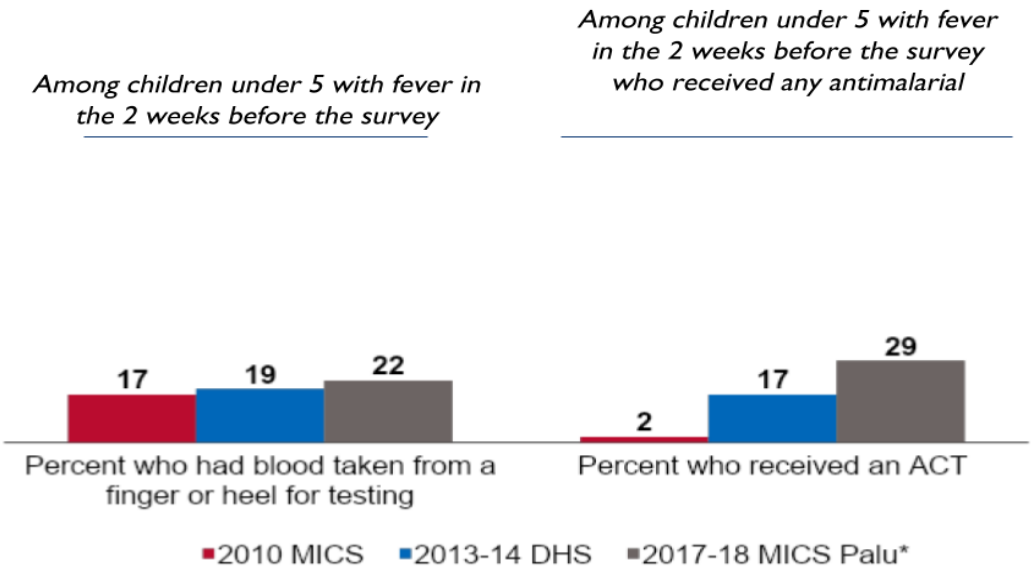
Since the PMI/DRC budget is insufficient to fully fund injectable artesunate, the team negotiated with Global Fund to procure injectable artesunate to cover the needs for children 0-13 years in PMI-supported provinces for 2021.

Key Question 3

How have malaria testing and treatment practices evolved over time?

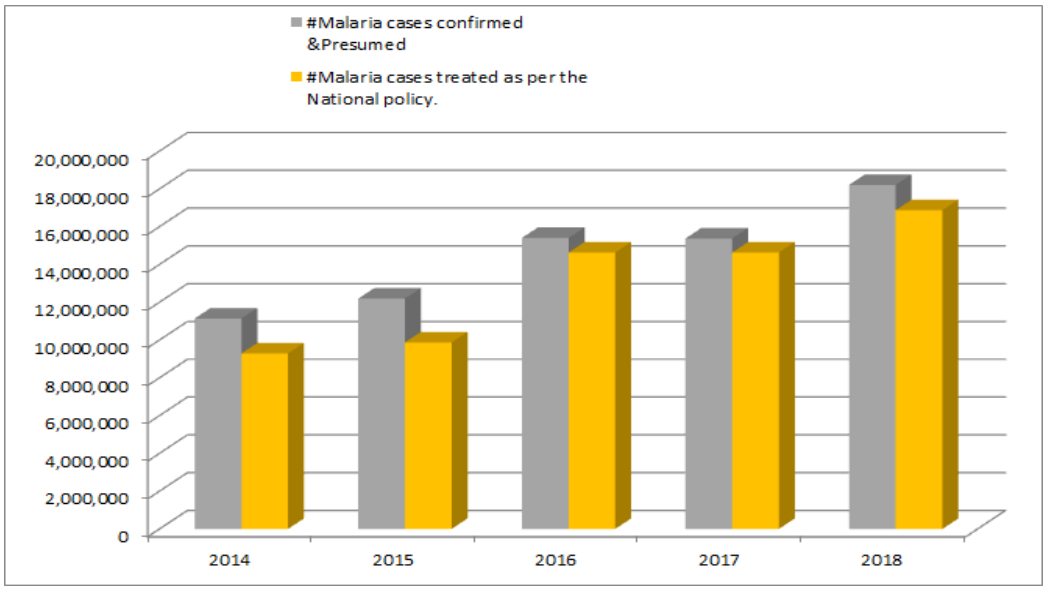
Supporting Data

Figure A22. Trends in Diagnosis and Treatment of Children with Fever



*Preliminary Data

Figure A23. Malaria Cases Increasing Over Time and General Upward Trend in Proportion of Malaria Cases Treated According to the National Policy



Source: NMCP reports 2014 - 2018

Conclusion

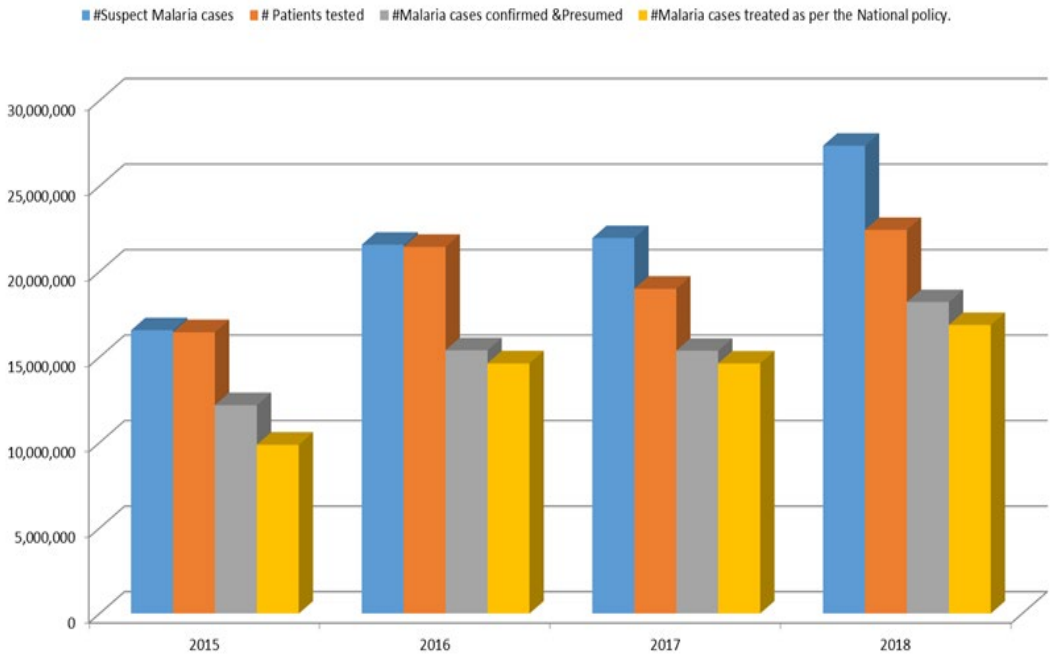
Estimates from household surveys show modest improvements in diagnostic testing practices of febrile children, but are still quite low overall. Among those receiving an antimalarial, the proportion receiving an ACT showed greater improvement from 2 percent in 2010 to almost 30 percent in 2017-18. Regardless of the improvements, facility-based case management services still need to be strengthened in DRC. Targeted training complemented by supportive supervision and other innovations to improve health worker adherence to national case management policies is a priority for PMI support.

Key Question 4

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

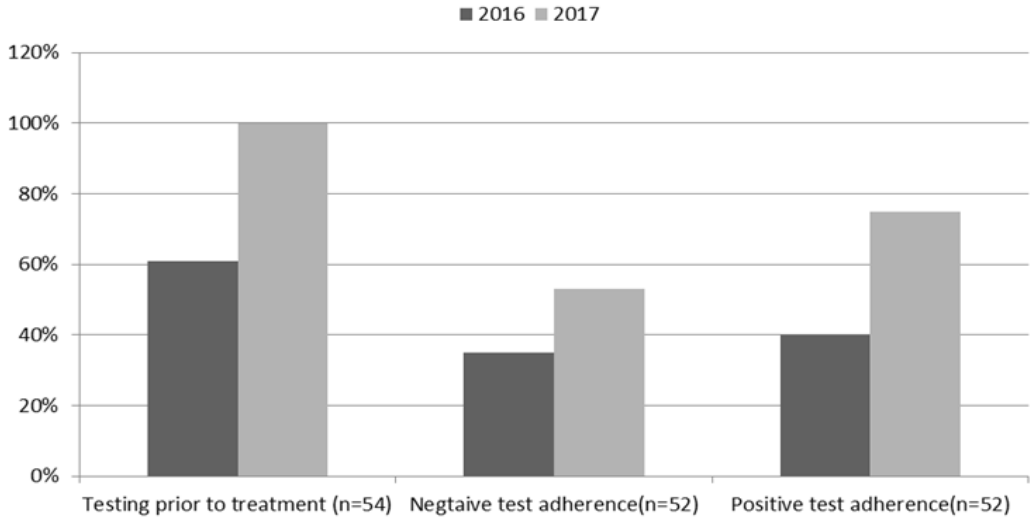
Supporting Data

Figure A24. Malaria Testing and Treatment Cascade



Source: NMCP Annual Reports 2015 - 2018

Figure A25. Malaria Diagnosis Testing and Provider Adherence to Results



Source: Malaria Care OTSS reports 2016 & 2017

Figure A26. Key Barriers and Facilitators to Appropriate Testing and Treatment Practices

Facilitator	Type of Factor	Data Source	Evidence
Perception that the service provider is valued as an expert and general positive regard for the quality of services provided at the facility	Internal/Social	Breakthrough Action Malaria Situation Analysis (2018)	A general literature review (i.e., not specific to the DRC context) cites factors that may facilitate good malaria case management.
Barrier	**Type of Factor**	**Data Source**	**Evidence**
Commodities stock-outs	Environmental	Malaria Care OTSS reports	Of the health facilities that did not meet the testing prior to treatment target, 64% reported a significant RDT stock-out (n=54 facilities). Similarly, 30% of the facilities that did not meet the target for positive test adherence reported a significant stock-out of ACTs.
Lack of refresher training for malaria case management providers who were trained before the case management guidelines update	Environmental	Implementing partners' reports 2017-2019	Only 1,287 health workers out of 5,874 health care workers in PMI-supported provinces were trained after the case management guidelines update, out of all previously trained providers.
Provider resistance to change	Internal/Social	OTSS Lessons Learned Workshop	During the Lessons Learned Workshop at the end of the program, OTSS supervisors noted resistance to change as a barrier to health worker adherence to case management guidelines.

Conclusion

It is clear that commodity availability and training in updated malaria case management guidelines are basic elements needed to provide high quality service delivery. It is therefore a priority to ensure that the updated malaria case management guidelines are fully disseminated in all supported health facilities and that key antimalarial commodities are routinely available at service delivery points. While necessary, these ingredients are likely not sufficient for ensuring high-quality malaria case management. More insights are needed to better understand the factors that may be influencing provider behavior for malaria case management. A mixed methods data collection activity to understand determinants of facility-based health worker case management and reporting practices is proposed with FY 2019 reprogramming and will provide these insights to inform training, supervision, and other innovative service delivery activities.

Key Question 5

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

Supporting Data

Between FY 2018 and FY 2019 MOPs the current support for case management includes:

- Planned trainings for 2,000 CHWs in approximately 1,000 new community care sites and supportive supervision of health workers who offer integrated case management for malaria, diarrhea, and pneumonia at community care sites. These trainings include an SBC module.
- Procurement of equipment kits for 1,000 new integrated community care sites, including secure storage for commodities, bikes, data collection tools, and flashlights.
- Implementation of a quality control and quality assurance system for malaria diagnosis. Conduct training of trainers on malaria microscopy at the different levels of the health system.
- In-service training for 3,000 facility-based health workers; supportive supervision of facility-based health workers responsible for the management of both uncomplicated and severe malaria in public and not-for-profit health centers and hospitals.

PMI will support training of facility-based and community health care workers in the nine PMI-supported provinces. Please see Table 2 for details on these activities.

Figure A27. Donor-Supported Facility- and Community-Based Case Management Support, 2016-2020

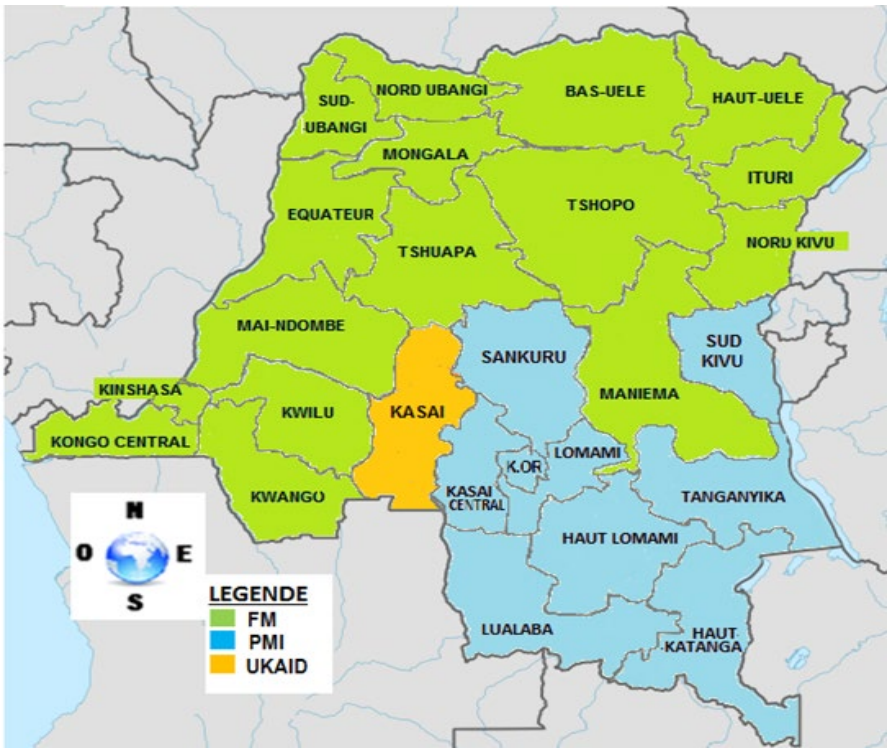
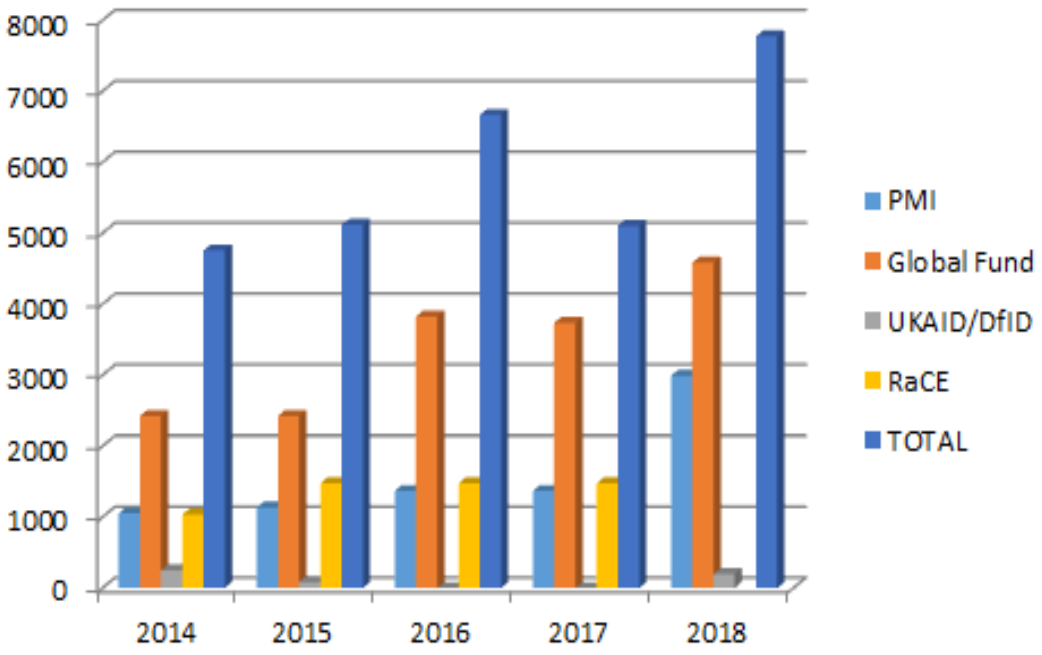


Figure A28. Community Care Sites Supported - by Donor



Source: NMCP annual reports 2014 - 2018

Nationwide it is estimated that only 30 percent of the population live within five kilometers of the nearest health facility. As a result, the response has been to focus on establishing community care sites to close this gap in malaria service provision. In all of DRC, an estimated 18,350 community care sites are needed for full scale up. Currently, only about 38 percent of these sites (6,968 sites) have been established. There are clear gaps yet to be filled.

Conclusion

There are 5,750 trained health workers in the nine PMI-supported provinces; all of them were trained based on the 2012 malaria case management technical guidance, before the new malaria case management guidelines were validated in April 2017. EUV surveys reported only 42 percent of health workers were trained on these guidelines.[6] Following the April 2017 guidelines validation, these guidelines have not been disseminated to health facilities. These data show that facility-based case management services still need to be strengthened in DRC. Targeted training complemented by supportive supervision and other innovations to improve health worker adherence to national case management policies is a priority for PMI support.

Key Question 6

What was the estimated need for RDTs during calendar year? What are the estimated RDT needs over calendar years 2020 and 2021?

[6] Source: November 2018 EUV report.

Supporting Data DRC

Figure A29. Gap Analysis of RDT Needs

Calendar Year	2019	2020	2021
RDT Needs			
Total country population	104,966,663	108,010,696	111,143,006
Population at risk for malaria [1]	104,966,663	108,010,696	111,143,006
PMI-targeted at-risk population	40,672,154	41,851,646	43,065,344
Total number of projected fever cases in PMI-targeted provinces	9,895,673	10,608,656	11,245,175
Percent of fever cases tested with an RDT	81%	81%	81%
Total RDT Needs [2] in PMI-targeted provinces	**8,015,495**	**8,593,011**	**9,108,592**
Partner Contributions (to PMI target population if not entire area at risk)*			
RDTs carried over from previous year	*1,659,725*	*1,744,230*	*954,780*
RDTs from Government	*0*	*0*	*0*
RDTs from Global Fund	0	2,803,561	4,554,296
RDTs from other donors	0	0	0
RDTs planned with PMI funding	8,100,000	5,000,000	0
Total RDTs Available	**9,759,725**	**9,547,791**	**5,509,076**
Total RDT Surplus (Gap)	**1,744,230**	**954,780**	**-3,599,517**

[1.] Quantification assumptions for RDT Gap Analysis:

- This year, there is no national quantification in DRC but a quantification just for provinces under PMI support. As did last year, this quantification of RDTs and ACTs no longer starts from the global population, but suspected cases.
- The starting point is 2018 suspected cases with growth of 6% per year (due to expected increase in the availability of services as per the Health National Development Plan). The quantification for 2019 was not review as we are at the end of the year. Then a growth of 12% was applied from 2018 to 2020
- The global testing rate is 90% (both RDT and microscopy). 90% of cases tested use RDTs, while 10% use microscopy. The percentage of fever cases to be tested with an RDT is 90%x 90%= 81%.
- This gap analysis is related only to PMI-targeted provinces as in DRC each main donor has its specific target (there is no overlap between donors but a possibility of interchangeability of stocks) However, in 2020 and 2021 the Global Fund is procuring RDTs for PMI-supported provinces.

The source of carried over stock from 2018 to 2019 is the December 2018 stock status report

The source of carried over stock from 2019 to 2020 is the estimated stock at the end of December 2019 based on September 2019 stock status report and forecast consumption from September to December

[2] This these RDT-needs are related to civil calendar (12 months) and are not including the security stock that should be equal to the minimum stock defined as 6 Month of Stock

Conclusion

While the total estimated RDT needs across 2019 - 2021 is fairly consistent, the 2020 PMI RDT order will be insufficient. Based on current RDT average monthly consumption across the PMI provinces there is an anticipated shortage of malaria RDTs in the first half of 2021. PMI has negotiated with the Global Fund to procure additional RDTs to avoid this potential shortage. Global Fund has tentatively agreed to procure 15 million RDTs for delivery before the end of 2020. Under the FY 2020 MOP PMI has removed the RDTs based on this Global Fund commitment. This will cover the RDT needs in PMI-supported provinces for 2021.

Key Question 7

What was the estimated need for ACTs during calendar year 2019? What is the estimated need for ACTs over calendar years 2020 and 2021?

Supporting Data

Figure A30. Gap Analysis of ACT Needs

Calendar Year	2019	2020	2021
ACT Needs			
Total country population	104,966,663	108,010,696	111,143,006
Population at risk for malaria	104,966,663	108,010,696	111,143,006
PMI-targeted at-risk population [1]	40,672,154	41,851,646	43,065,344
Total projected number of malaria cases in PMI-targeted provinces	7,112,487	8,223,932	8,802,697
Total ACT Needs [2] in PMI-targeted provinces	**7,112,487**	**8,223,932**	**8,802,697**
Partner Contributions (to PMI target population if not entire area at risk)[1]			
ACTs carried over from previous year	*505,413*	*0*	*0*
ACTs from Government	*0*	*0*	*0*
ACTs from Global Fund	*0*	*0*	*0*
ACTs from other donors	*0*	*0*	*0*
ACTs planned with PMI funding	4,000,000	5,500,000	8,802,697
Total ACTs Available	**4,505,413**	**5,500,000**	**8,802,697**
Total ACT Surplus (Gap)	**-2,607,074**	**-2,723,932**	**0**

[1.] Quantification assumptions for ACT Gap Analysis:
- The recent quantification of RDTs and ACTs (just for PMI supported provinces) no longer starts from the global population, but suspected cases.
- The starting point is 2018 suspected cases with growth of 6% per year (due to expected increase in the availability of services as per the Health National Development Plan). The quantification for 2019 done since April 2018 was not review as we are at the end of the year! Then a growth of 12% was applied from 2018 to 2020
-The testing rate with RDTs is 81% and 9% with microscopy
-Total projected malaria cases were estimated by increasing confirmed cases with 7% that represent presumptive cases (as per the NMCP 2018 report)

[2] These ACT needs are related to the calendar year and are not including the security stock that should be equal to the minimum stock defined as 6 Months of Stock

The source of carried over stock from 2018 to 2019 is the December 2018 stock status report

The source of carried over stock from 2019 to 2020 is the estimated stock at the end of December 2019 based on September 2019 stock status report and forecast consumption from September to December

- This gap analysis is related only to PMI-targeted provinces as in DRC each main donor has its specific target (there is no overlap between donors but a possibility of interchangeability of stocks)

Conclusion

The gap analysis table shows a sizable ACT gap for 2019 and 2020. In PMI-supported provinces the DRC PMI team relies on the interchangeability of ASAQ and AL to address stock shortages of one or the other ACT to ensure availability of ACTs in health facilities for case management. The ACT needs in 2021 are estimated to be at 8.8 million treatments. This estimation is based on population levels from the health zones which are noticeably higher than the estimated population figures provided from the national level. It also assumes increased utilization rates for public sector health services based on the national health development strategy.

During FY 2019 MOP planning the ACT gap analysis table indicated an expected carry over of approximately 1 million ACT treatments for CY 2020. However, the current gap analysis table shows

that this carry over is now unlikely to be available. PMI/DRC will monitor closely the ACT stock situation in 2020 and work with the global health supply chain teams to see if the budget will allow for an emergency ACT order and possibly expediting the FY 2020 MOP order of 8.2 million ACT treatments.

The gap analysis table shows that 8.8 million ACT treatments are needed in 2021. Given the jump in the annual ACT needs compared to previous years, which are based on new assumptions, and considering our stable budget envelope DRC has planned to initially support 8.2 of the 8.8 million 2021 ACT needs. Once the final DRC FY 2020 funding amounts are available we will consider adjusting this line based on updated gap analysis information to avoid having any ACT gaps in 2021.

Key Question 8

What was the estimated need for severe malaria treatment and any other treatments as applicable during calendar year 2019? What is the estimated need for calendar years 2020 and 2021?

Supporting Data

Figure A31. Gap Analysis of Injectable Artesunate[1]

Calendar Year	2019	2020	2021
Injectable Artesunate Needs			
Projected Number of Severe Cases[1] in PMI-targeted provinces	607,609	788,438	873,673
Projected # of severe cases among children	280,715	492,221	545,433
Projected # of severe cases among adults	326,894	296,217	328,240
Total Injectable Artesunate vials Needs [2] in PMI-targeted provinces	**3,414,156**	**4,430,233**	**4,909,170**
Partner Contributions			
Injectable artesunate vials carried over from previous year	*765,128*		
Injectable artesunate vials from Government	*0*	*0*	*0*
Injectable artesunate vials from Global Fund	0	0	2,290,771
Injectable artesunate vials from other donors	0	0	0
Injectable artesunate vials planned with PMI funding (quantity needed for severe cases among children 0-13 years)	1,084,389	1,069,579	0
Total Injectable Artesunate vials Available in PMI-targeted provinces	**1,849,517**	**1,069,579**	**2,290,771**
Total Injectable Artesunate vials Surplus (Gap) in PMI-targeted provinces	**-1,564,639**	**-3,360,654**	**-2,618,399**

[1.] Quantification assumptions for Inj Artesunate Gap Analysis: The started point is projected number of malaria cases(only confirmed cases either by RDTs and Microscopy). From this number, an average of 9.8% was applied to estimate number of severe cases (as per 2018 NMCP data base)

As per the last 2018 EUV (a countrywide one with a representative sample of HF), proportions Malaria cases age-group are following:2-11months: 11.2%; 1 to 5 years old: 35 %; Age range 6 - 13 years: 20.6%; > 13 years old: 33.3%;

As per the posology, the number of Injectable Artesunate 60 mg per severe case are following: 2-11months: 3; 1 to 5 years old: 3; Age range 6 - 13 years: 6; > 13 years old: 9

[2] All severe cases are expected to be treated with injectable artesunate while PMI is no longer procuring quinine for DRC. This these needs are related to the calendar year and do not include the security stock that should be equal to the minimum stock defined as 6 Month of Stock

The source of carried over stock from 2018 to 2019 is the December 2018 stock status report

The source of carried over stock from 2019 to 2020 is the estimated stock at the end of December 2019 based on September 2019 stock status report and forecast consumption from September to December

- This gap analysis is related only to PMI-targeted provinces as in DRC each main donor has its specific target (there is no overlap between donors but a possibility of interchangeability of stocks). However, for 2021 the Global Fund is procuring the injectable artesunate needs for children 0-13 years in PMI-supported provinces.

Figure A32. Gap Analysis of Artesunate Suppository Needs[1]

Calendar Year	2019	2020	2021
Artesunate Suppository Needs			
Number of severe cases expected to require pre-referral dose at community level	103,361	112,160	113,491
Total Artesunate Suppository Needs [2]	**130,856**	**141,995**	**143,679**
Partner Contributions			
Artesunate suppositories carried over from previous year	*2,953*	*22,097*	*30,102*
Artesunate suppositories from Government	*0*	*0*	*0*
Artesunate suppositories from Global Fund	*0*	*0*	*0*
Artesunate suppositories from other donors	*0*	*0*	*0*
Artesunate suppositories planned with PMI funding	150,000	150,000	180,000
Total Artesunate Suppositories Available	**152,953**	**172,097**	**210,102**
Total Artesunate Suppositories Surplus (Gap)	**22,097**	**30,102**	**66,423**

1. Quantification assumptions for Artesunate Suppositories Gap Analysis:

The started point is projected number of malaria cases(only confirmed cases either by RDTs and Microscopy). From this number, an average of 9.8% was applied to estimate number of severe cases(as per 2018 NMCP data base). As per the last 2018 EUV (a countrywide one with a representative sample of HF), proportions Malaria cases age-group are following:; 2-11months: 11.2%; 1 to 5 years old: 35 %; Age range 6 - 13 years: 20.6%; > 13 years old: 33.3% as per 2018 NMCP data, severe malaria cases referred from peripheral Health Facilities and community care sites, are around 32%. As per WHO, the posology of Artesunate suppository 100mg to use for a severe case to refer, is the following: 0-3 years: 1 suppository; > 3 years old: 2 suppositories. A Proxy obtained from DHS-MIS (https://www.dhsprogram.com/data/available-datasets.cfm was then used. It is a weighted average of 1.266 rectal Artesunate for a severe case of malaria from 0 to 5 years to refer

2 These needs are for referred severe cases supposed to be from 0 to 5 years old! And they are related to civil calendar (12 months) and are not including the security stock that should be equal to the minimum stock defined as 6 Month of Stock

The source of carried over stock from 2018 to 2019 is the December 2018 stock status report

The source of carried over stock from 2019 to 2020 is the estimated stock at the end of December 2019 based on September 2019 stock status report and forecast consumption from September to December

- This gap analysis is related only to PMI-targeted provinces as in DRC each main donor has its specific target (there is no overlap between donors but a possibility of interchangeability of stocks)

Conclusion

The gap analysis table shows that the planned PMI severe malaria medicine procurements compared to the injectable and rectal AS needs in 2019 and 2020 are relatively well aligned. It is important to note that this estimation is based on population levels from the health zones which are noticeably higher than the estimated population figures provided from the national level. It is also important to note that while PMI procures injectable AS for children 0-13 years that on the ground these supplies are used to treat severe malaria in all age groups, thus resulting in periodic stockouts of this product in PMI-supported provinces.

Since the PMI/DRC budget is insufficient to fully fund injectable artesunate and as part of discussions to leverage GF resources needed to be spent before the end of CY 2020; for the FY 2020 MOP PMI/DRC negotiated with the Global Fund to procure 2,290,771 vials of injectable artesunate to cover the needs for children 0-13 years in PMI-supported provinces for 2021.

Key Question 9

Are the first-line ACTs effective and monitored regularly?

Supporting Data

Figure A33. 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
2012-2013	Six sites (not PMI-funded)	ASAQ, AL		
2017	Kabondo (Tshopo), Kapolowe (Haut Katanga), Rutshuru (Nord Kivu), Mikalayi (Kasai Central), Bolenge (Equateur), Kimpese (Kongo Central)	ASAQ, AL, DP	Yes, for five sites, according to the counting method. Yes, for four sites and no for two drugs (AL and DP) at one site (Mikalayi) for the Bayesian statistical algorithm method.*	CDC laboratory research unit through PMI-supported antimalarial resistance monitoring in Africa (PARMA)
2019-2020	Kabondo (Tshopo), Kapolowe (Haut-Katanga) Rutshuru (Nord Kivu) Mikalayi (Kasaï Central), Bolenge (Equateur), Kimpese (Kongo Central)	ASAQ, AL	No results yet.	CDC laboratory research unit through PARMA

* Results for Bolengue are not yet available.

Conclusion

Based on the 2017 therapeutic efficacy study, there is evidence of decreased efficacy of ACTs in certain sites in DRC depending on the method used to distinguish recrudescence from reinfection. In 2020, further evidence will be collected from the latest TES which will help inform the choice of first-line ACTs in DRC. Given that DRC shows some evidence of waning drug efficacy and is a context with high multiplicity and diversity of infection, regular TES will continue to be a priority of PMI/DRC.

Key Question 10

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

Supporting Data

None

Conclusion

None

Key Question 11

Are there any other considerations that impact your funding allocation in this category? If there is a specific budget line item in Table 2 that is not covered by the above questions, please address here.

Supporting Data

None

Conclusion

None

2.B. DRUG-BASED PREVENTION

NMCP objective
The DRC NMCP National Malaria Strategic Plan aims to protect at least 80 percent of pregnant women from malaria in pregnancy through the provision of at least three doses of Sulfadoxine/pyrimethamine (SP) over the course of a woman's pregnancy.
NMCP approach
IPTp is provided through antenatal care visits starting from 13 weeks of pregnancy. SP is given as directly observed treatment at health care facilities. DRC is piloting community-based IPTp in Global Fund supported three health zones.
PMI objective, in support of NMCP
PMI supports the NMCP to achieve their objective for IPTp coverage in the nine PMI-supported provinces.
PMI-supported recent progress (past ~12-18 months)
● Training and supportive supervision for facility-based health care providers on malaria in pregnancy and IPTp. ● Procurement of two million SP treatments. ● Provision of water containers and cups to facilitate directly-observed treatment with SP. ● SBC activities at health zone and community level promoting ANC and IPTp.
PMI-supported planned activities (next ~12-18 months, supported by currently available funds)
● Training and supportive supervision for facility-based health care providers on malaria in pregnancy and IPTp.

- Procurement of two million SP treatments.
- Provision of water containers and cups to facilitate directly-observed treatment with SP.
- Study to understand the gaps between high ANC rates and low IPTp rates.
- Update and disseminate revised malaria treatment guidelines.
- SBC activities at health zone and community level promoting ANC and IPTp.

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

PMI Goal
Support the national strategy for MIP, which includes provision of ITNs at first antenatal care (ANC) visit, intermittent preventive treatment for pregnant women (IPTp) to all pregnant women in malaria endemic areas starting at 13 weeks gestational age, for a minimum of three doses, and effective case management of malaria, in accordance with the WHO recommendations.

Do you propose expanding, contracting, or changing any MIP activities? If so, why, and what data did you use to arrive at that conclusion?
The PMI/DRC team is not currently planning on changing any MIP activities from FY 2019 approved activities. 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 A34. Trends in ANC Coverage 2007-2018

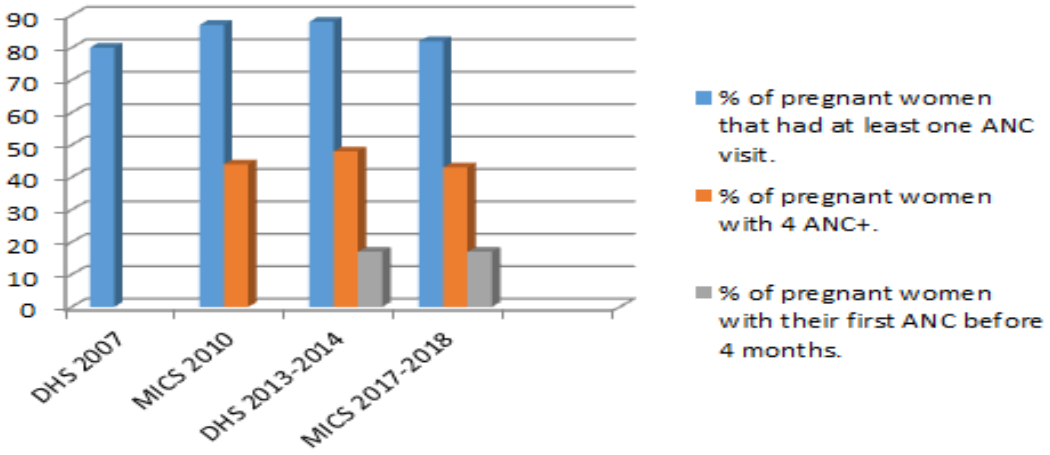


Figure A35. Key Barriers and Facilitators to ANC Attendance

Facilitator	Type of Factor	Data Source	Evidence
Availability of ANC services in health facilities	Environmental	SPA 2017-18	96% of all existing health facilities offer ANC services.
Barrier	**Type of Factor**	**Data Source**	**Evidence**
Low access to health facilities	Environmental	National Health Development Plan (PNDS 2016-2020)	Only 30% of the population has access to health facilities within 5 Km.
ANC services offered at limited times within health centers	Environmental	SPA 2017-18	54% of health facilities offer ANC services 1-2 days/week, 27% offer ANC services at least three times/week, 19% of health centers offer ANC less than four times per month.
Education	Internal	MICS 2017-2018	Pregnant women with at least secondary education attend more ANC visits (89% ANC1, 51% ANC4) than those who have not studied at all (73% ANC1, 35% ANC4).
Financial difficulties, absence of problems with the pregnancy, rural residence, multiparity	Internal, Environmental	"Late antenatal care attendance, main determinants, in health zones of Katanga and Equateur, DRC" (Mafuta & Kayembe, 2011)[7]	ANC attendance was 85.7% among pregnant women and breastfeeding mothers, and 59.8% of those attending ANC received ANC late (after 16 weeks of pregnancy). Reasons for late ANC included financial difficulties and the absence of problems with the pregnancy. Late ANC was associated with rural residence, multiparity, and other factors.

[7] Mafuta E, Kayembe P. Déterminants de la fréquentation tardive des services de soins prénatals dans les zones

Conclusion

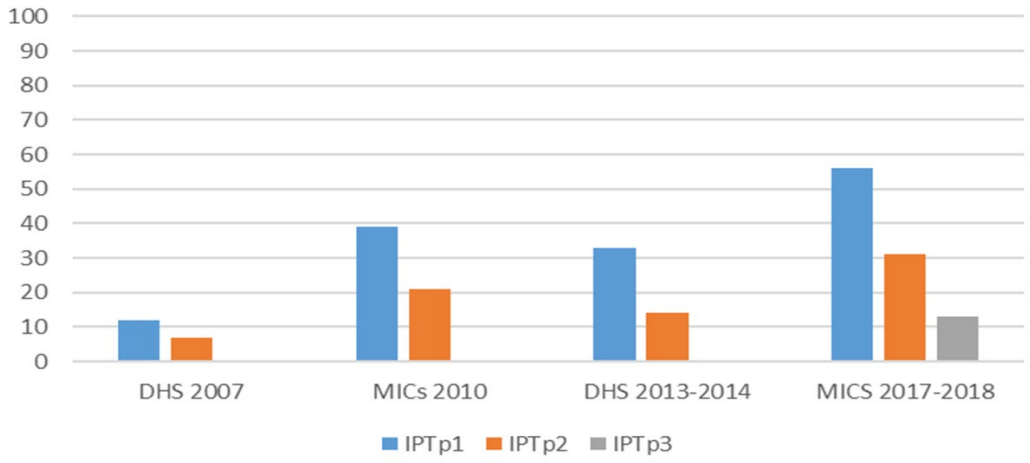
There has been stagnation in ANC coverage between 2007 and 2018 in DRC. ANC1 coverage has hovered at around 80 percent over the last 10 years, with very few pregnant women having their first ANC before four months gestational age. This makes it difficult for DRC to achieve high levels of early initiation of IPTp between 13-16 weeks. Given that only approximately 40 percent of pregnant women have at least four ANC visits, it is also difficult for women to have a minimum of three doses of SP. ANC4 has also shown no progress since it was first measured in 2010. Some of the reasons why women initiate ANC late include financial difficulties and not experiencing problems with their pregnancy. Distance to health centers and infrequent ANC services may also limit ANC uptake. Sensitization for women and key family members on the need to start ANC early and continue ANC throughout their pregnancy is a priority for PMI/DRC. The malaria behavior survey will also provide additional insights into the root causes for low early ANC attendance.

Key Question 2

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

Supporting Data

Figure A36. Trends in IPTp Coverage, 2007-2018



Conclusion

Household survey data show improvements in IPTp1 and IPTp2 coverage, with more than 50 percent of women receiving IPTp1 and approximately 30 percent of pregnant women receiving IPTp2 according to the 2017-18 MICS. IPTp3 levels are below 15 percent. Despite improvements in IPTp over the last ten years, IPTp coverage remains low in general. PMI/DRC is trying to better understand the determinants of low IPTp coverage through formative research in 2020. New approaches and lessons learned may also come out of a pilot study on community IPTp administration ("Tip Top"

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de santé de l'Equateur et du Katanga en République Démocratique du Congo. *Ann. Afr. Med.* 2011 Sept; **4**(4): 845-854.

project financed by UNITAID), that is being implemented in Kwango and Kwilu provinces. Results are expected by the end of 2019.

Key Question 3

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

Supporting Data

Figure A37. Gap in ANC and IPTp Coverage

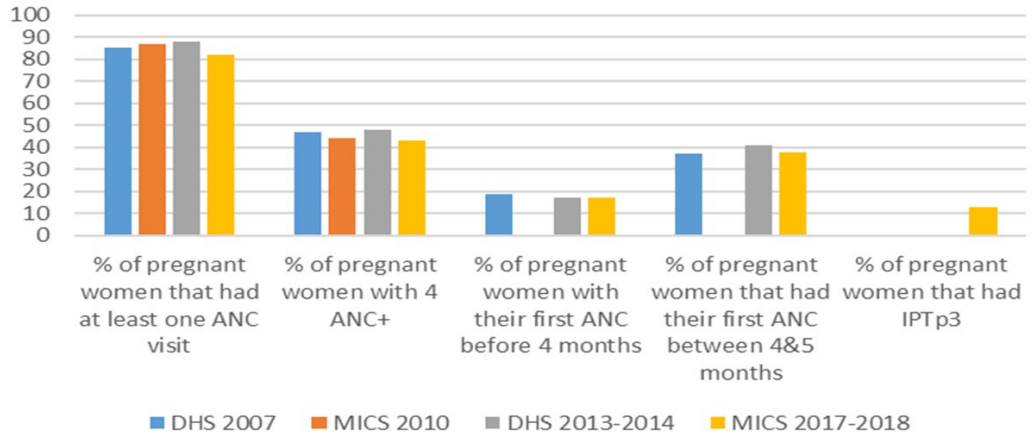


Figure A38. Key Barriers and Facilitators to IPTp Administration at ANC Visits

Facilitator	Type of Factor	Data Source	Evidence
Barrier	**Type of Factor**	**Data Source**	**Evidence**
Unavailability of SP in some health centers providing ANC	Environmental	SPA 2017-18	Among health centers offering ANC services, 74% had SP on the day of the SPA visit.
Lack of training	Environmental	SPA 2017-2018	Of the ANC providers interviewed, only 17% had received in-service training on intermittent preventive treatment against malaria during pregnancy (IPTp) in the last two years, and 45% had received in-service training on IPTp at some point in time. 52% of health facilities offering ANC services had directives on IPTp available on the day of the survey.

Conclusion

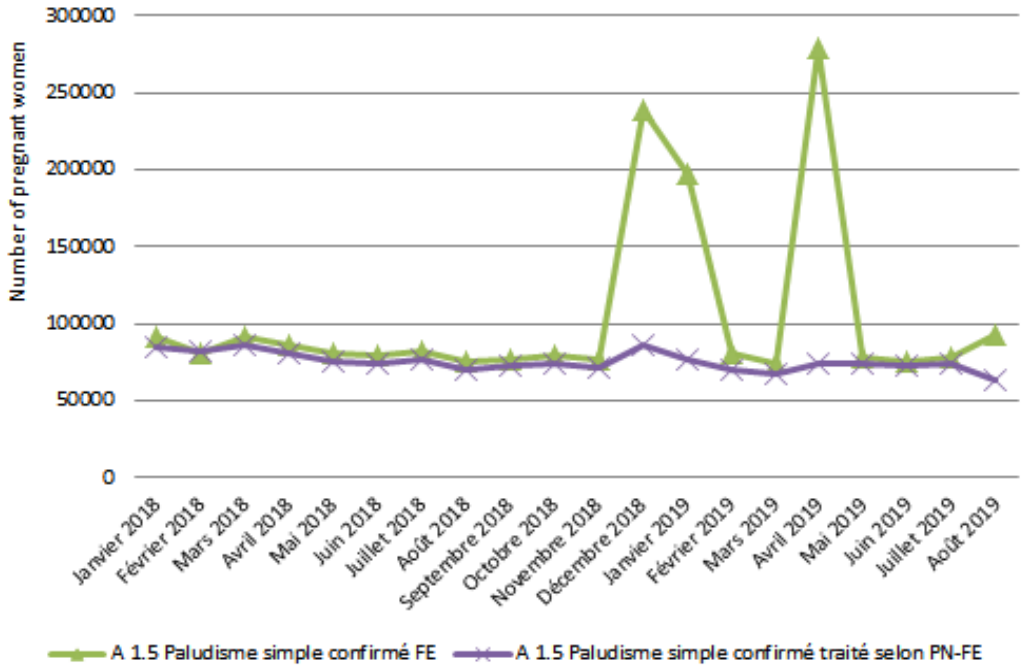
There is a large gap between ANC4 coverage and IPTp3 in DRC. As there is little current information on this topic, PMI/DRC has prioritized identifying the major facilitators and barriers to IPTp in CY 2020 with already programmed MOP 18 funds. If appropriate, SBC and/or other interventions will be designed to address the identified barriers after the research is completed.

Key Question 4

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

Supporting Data

Figure A39. Number of Pregnant Women with Uncomplicated Malaria and Number Treated



Source: DHIS2

Figure A40. Number of Pregnant Women with Severe Malaria and Number Treated

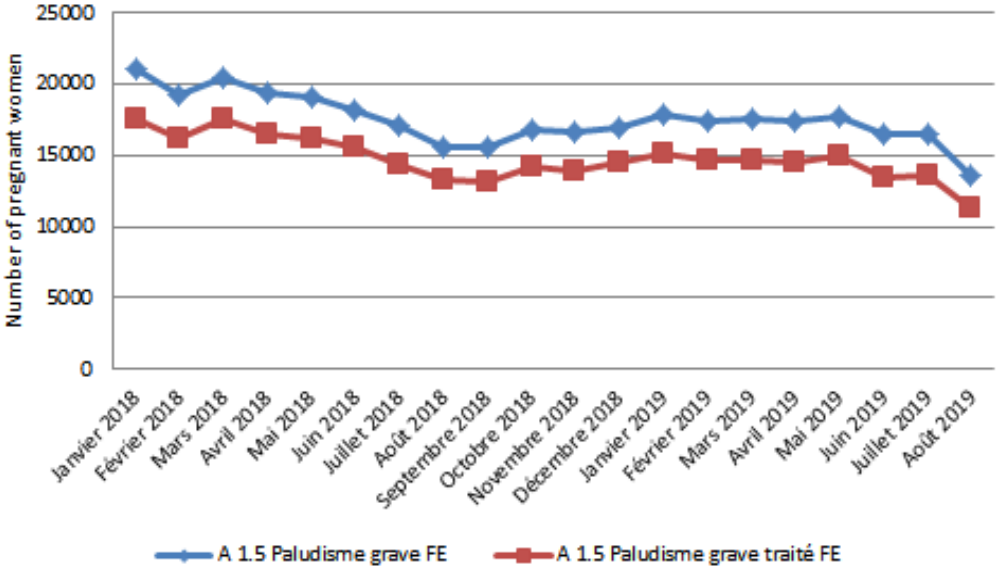


Figure A41. Key Barriers and Facilitators for malaria treatment of pregnant women

Facilitator	Type of Factor	Data Source	Evidence
Barrier	**Type of Factor**	**Data Source**	**Evidence**
Unavailability of ACTs in health centers providing malaria services	Environmental	SPA 2017-18	Among health centers providing malaria services, 84% had ACTs on the day of the SPA visit.
Unavailability of injectable artesunate in health centers providing malaria services	Environmental	SPA 2017-18	Among health centers providing malaria services, 22% had injectable artesunate on the day of the SPA visit (including 62% of reference hospitals and 56% of reference health centers).

Conclusion

There is no current data on the proportion of pregnant women with fever and malaria infection that are getting diagnosed and treated. This information would need to come from the community level, from a household survey for example, but is not currently being collected. DHIS2 data do indicate that in general there is a gap between pregnant women who receive a malaria diagnosis (both uncomplicated and severe malaria) and those who receive treatment. Part of this might be due to stock outs of ACTs and injectable artesunate in health facilities according to the most recent SPA. This would imply the need for better stock management and/or supply chain practices. It would also be helpful to capture

information on care seeking for women with fever in order to get more information on those who might not present to a health facility.

Key Question 5

What was the estimated need for IPTp commodities during calendar year 2019? What is the estimated need for IPTp commodities over calendar years 2020 and 2021?

Supporting Data

Figure A42. Gap Analysis of IPTp Commodities Needs

Calendar Year	2019	2020	2021
Total Population at Risk (in PMI-targeted provinces)	40,672,154	41,851,646	43,065,344
SP Needs			
Total number of pregnant women[1]	1,626,886	1,674,066	1,722,614
Total SP Need (in treatments)	**4,425,130**	**4,553,459**	**4,685,509**
Partner Contributions			
SP carried over from previous years	364,000	2,090,000	0
SP from Government	0	0	0
SP from Global Fund	0	0	0
SP from Other Donors	0	0	0
SP planned with PMI funding	2,000,000	2,000,000	4,685,509
Total SP Available	**2,364,000**	**4,090,000**	**4,685,509**
Total SP Surplus (Gap)	**-2,061,130**	**-463,459**	**0**

[1)] *The total number of pregnant women is estimated at 4.0% of the total population.*

Conclusion

In the last three years, SP needs are consistently around 4.5 million treatments per year in PMI provinces. Due to delays in the delivery of an earlier FY year SP procurement, DRC experienced widespread stockouts of SP in the first half of 2019. The order was finally delivered in July/August 2019 and facilities were replenished. The SP gap shown in Figure A42 is a reflection of this stockout from early 2019. In addition, since the gap analysis template was adjusted and these assumptions were applied to 2019 despite being ¾ of the way through the year, the large gap in 2019 is also inflated as a result. The small gap expected in 2020 will be monitored closely. If there are available commodity funds and additional quantities are indeed needed, then PMI will place another order to mitigate any stockouts due to this shortfall.

The 2019 procurement of 2 million treatments for 2020 is less than half of the forecasted need. Though with the anticipated two million treatments that will carry over from earlier procurements, the stock situation should be relatively stable. PMI/DRC has planned to procure 2.2 million SP treatments for 2021 which is consistent with the historical quantity procured, though based on the quantification this represents only half of the need. The increase in this budget line is primarily driven by a higher unit cost for smaller bottle sizes and increased quantities. Once the final DRC FY 2020 funding amounts

are available we will consider adjusting this line based on updated SP gap analysis information to avoid having any SP gaps in 2021.

Key Question 6

Are there any other considerations that impact your funding allocation in this category?

Supporting Data

None

Conclusion

None

3. CROSS-CUTTING AND OTHER HEALTH SYSTEMS

3.A. SUPPLY CHAIN

NMCP objective
The DRC 2016-20 National Malaria Strategic Plan includes strengthening the malaria supply chain system. Antimalarial commodity availability at all levels of the DRC health system is essential to allow health care providers to diagnose and appropriately treat malaria. PMI acknowledges the importance of the availability of high quality commodities in order to continue the scale up of proven malaria control interventions.
NMCP approach
The Democratic Republic of the Congo's supply chain system works through a series of regional independent private non-profit warehouses with whom donors typically contract for storage and distribution to health zone services. In addition to ensuring the availability of high quality antimalarial medicines and related products across all levels of the health system, the DRC 2016-20 National Malaria Strategic Plan highlights the importance of coordination among the key malaria procurement and supply chain management stakeholders. It also highlights the importance of regular logistics data to inform supply planning and forecasting and establishing an electronic logistics management information system. As all antimalarial medicines and related products are procured by donors, the coordination between these donors is critical. The Global Fund and PMI have negotiated an agreement of commodity interchangeability to enable easy loaning and repaying of antimalarial commodities to mitigate shortages and potential stock outs.
PMI objective, in support of NMCP
PMI/DRC continues to support the country's supply chain strategy, in particular by working through the national supply chain system and storage and distribution channels (regional depots, health zones, health facilities). Based on the geographic rationalization that was negotiated between the

DRC Ministry of Health, PMI, the Global Fund, and DFID, PMI is supporting supply chain activities and systems strengthening in the nine PMI-supported provinces.

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

- EUV conducted twice a year jointly with the Global Fund.
- Support national and provincial PSM technical working groups (quarterly meetings)
- InfoMed logistics management information system roll out and training of supply chain focal points.
- Warehouse in a box for Kinshasa (co-funded with PEPFAR and Global Fund)

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

- EUV conducted twice a year jointly with the Global Fund.
- Procurement and Supply Management technical working group
- InfoMed logistics management information system
- Warehouse in a box for Kinshasa (co-funded with PEPFAR and Global Fund)
- Coordinate with CDRs and IHP to identify strategies to improve pharmaceutical management actions at the health zone and lower levels.

PMI Goal

Ensure continual 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 expanding, contracting, or changing any supply chain activities? If so, why, and what data did you use to arrive at that conclusion?

PMI will continue to support supply chain management system strengthening as in previous years. Unfortunately, a majority of the MOP non procurement funds for supply chain management go to covering the cost of transport and storage down to the final beneficiary level. The limited infrastructure and cost of transportation in DRC means that a major proportion of the PMI/DRC annual budget is committed to covering these costs.

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

Key Question 1

Has the central level, 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 A43. Central Stock Level of AL/PMI-Supported Provinces

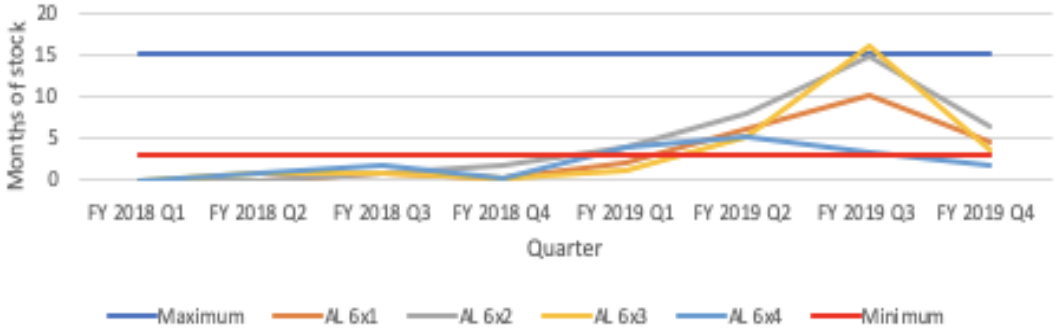


Figure A44. Central Stock Level of AS/AQ for PMI-Supported Provinces

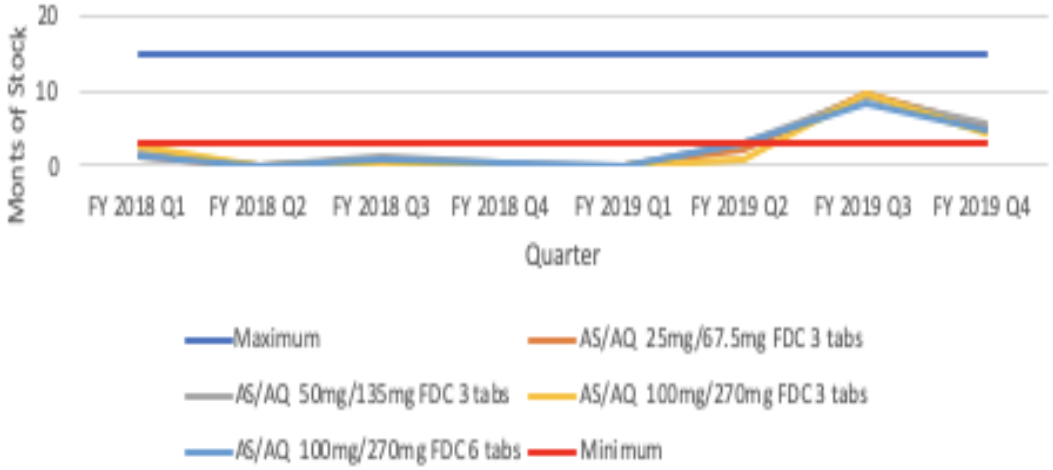
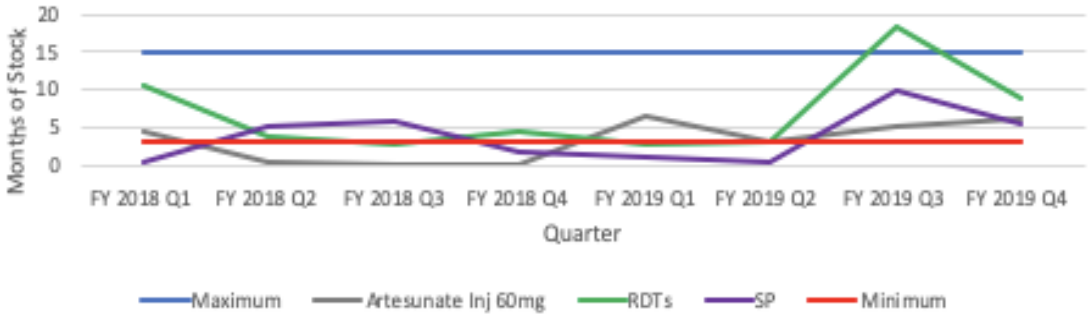


Figure A45. Central Stock Level of Art Inj, RDTs & SP in PMI-Supported Provinces



Conclusion

Over the last 12 months RDTs, ACTs, SP and injectable artesunate stocks at the central (regional depot) level have been more stable and fallen more consistently within the minimum and maximum stock window than in the previous year. However, the functionality of the DRC supply chain system is

unpredictable due to a number of factors including the cost and distances to transport commodities, lack of appropriate infrastructure (road networks, warehousing, nascent LMIS, etc.) and challenges with lead times due to lengthy and complex customs clearing procedures. The DRC PMI team will continue to work to mitigate the impact of these factors on antimalarial stock availability in PMI-supported health facilities.

Key Question 2

What are the trends in facility- and community health worker-level stock out rates for ACTs, RDTs, and SP over the last year? Is there a seasonal or geographic difference in stock out rates?

Supporting Data

Figure A46. AL Stockout Rates

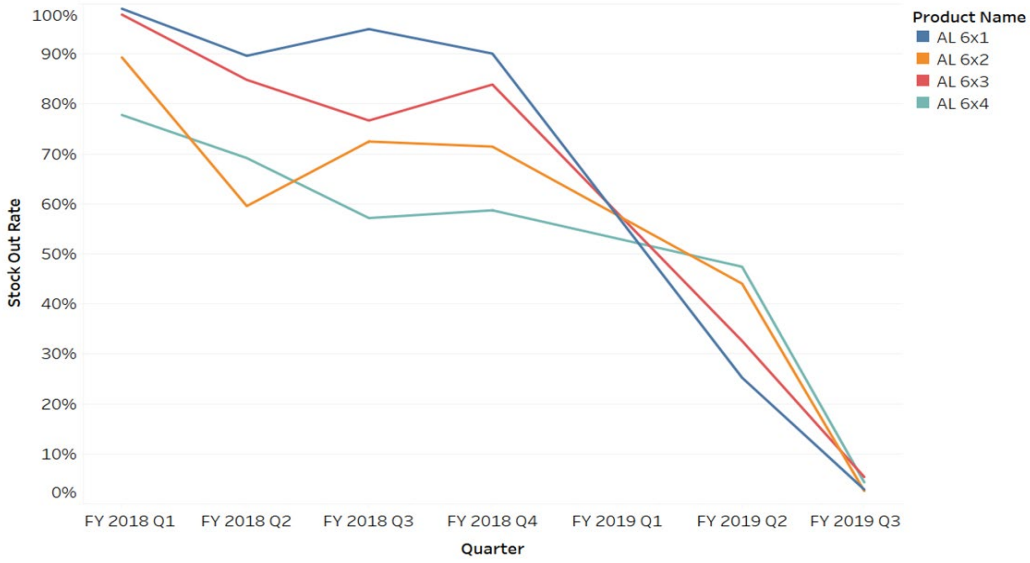


Figure A47. AS/AQ Stockout Rates

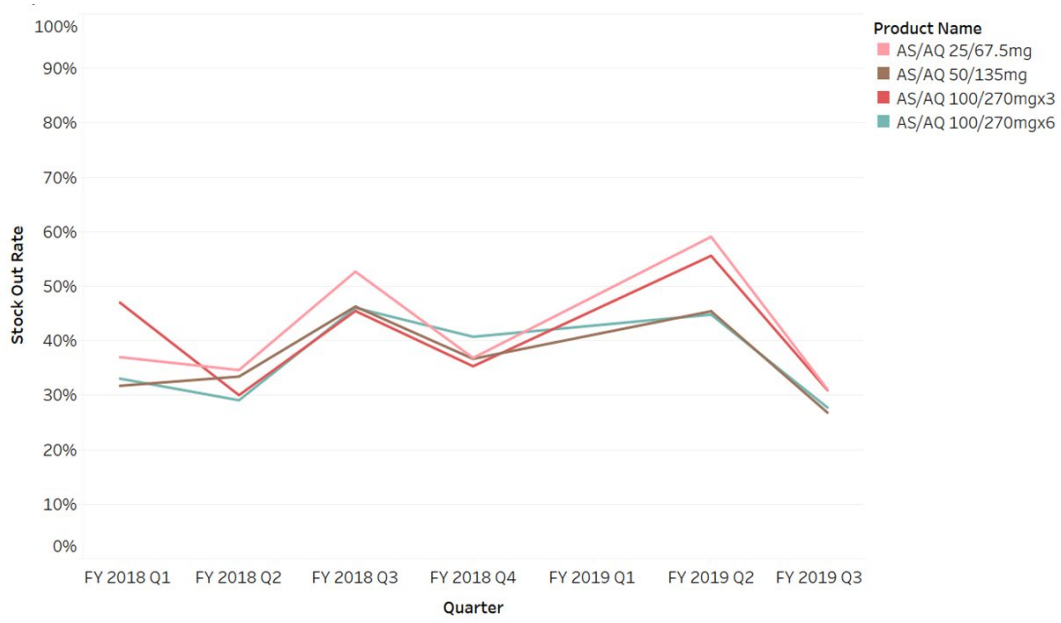
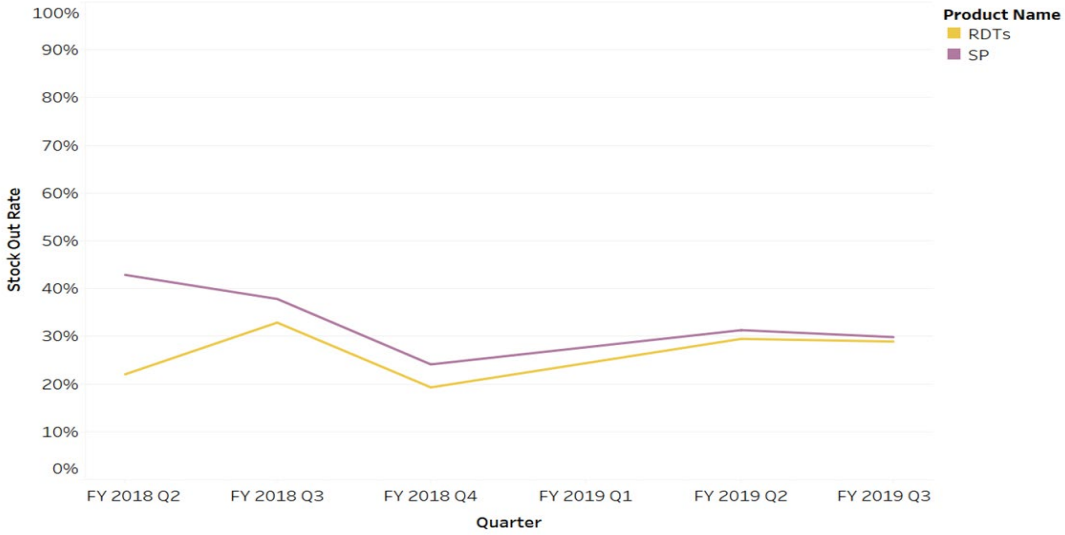


Figure A48. SP and RDT Stockout Rates



Conclusion

In PMI-supported provinces ASAQ and AL are used interchangeably so that in the event of a stockout of one product, the other is used in its place to ensure availability of ACTs in health facilities and at the community level for case management. Antimalarial products across the nine regional depots in PMI-supported provinces are monitored and redistributed when needed to also mitigate stock outs. PMI/DRC currently procures up 12 months' worth of antimalarial product stocks depending on the available budget. As a result, often these quantities run dangerously low before the next year's orders begin to arrive as there is no in-country buffer stock in PMI-supported provinces.

While the DRC supply chain system gets these essential life-saving medicines out to the most rural health facilities and community care sites, distribution within DRC from the port of entry down to the end beneficiary is quite costly and challenging.

Key Question 3

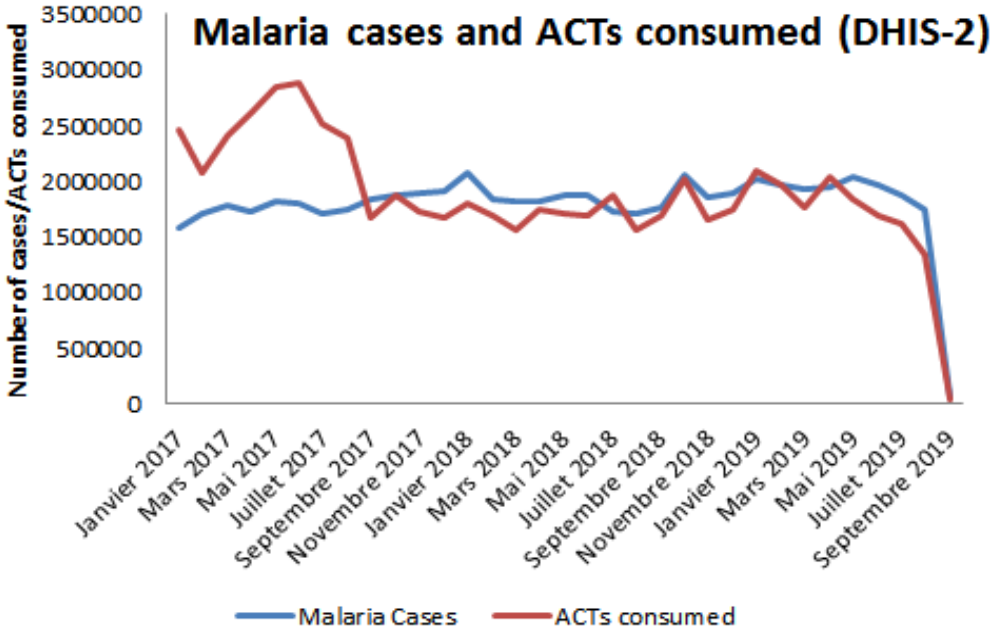
What is the difference between quantities for ACTs consumed and malaria cases, and RDTs consumed and numbers tested? What is driving any differences seen?

Supporting Data

The LMIS system in DRC is not yet fully functional, therefore all testing and stock information is coming from DHIS2, so the comparisons requested in this section are not as useful given that there is only once source of data.

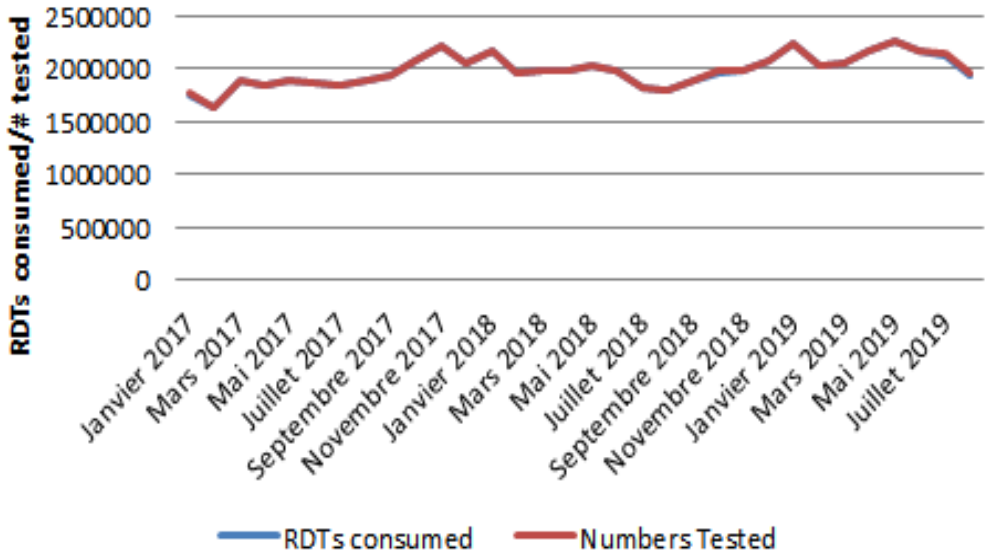
Information on numbers of malaria cases and ACTs consumed comes from DHIS2. Malaria cases includes RDT positive, microscopy positive, and presumed malaria case numbers. ACTs consumed includes four formulations of ASAQ and two formulations of AL. However, the DHIS2 data do not include the four formulations of AL that PMI procures.

Figure A49. Malaria Cases and ACTs Consumed, DHIS-2



Information on RDTs consumed and numbers tested comes from DHIS2. The numbers tested is the sum of the RDTs consumed at the health center and community level in addition to the malaria smears performed. As the number of malaria smears performed is a relatively small number, there is almost no difference between RDTs consumed and number tested.

Figure A50. RDTs Consumed v. Number Tested



Conclusion

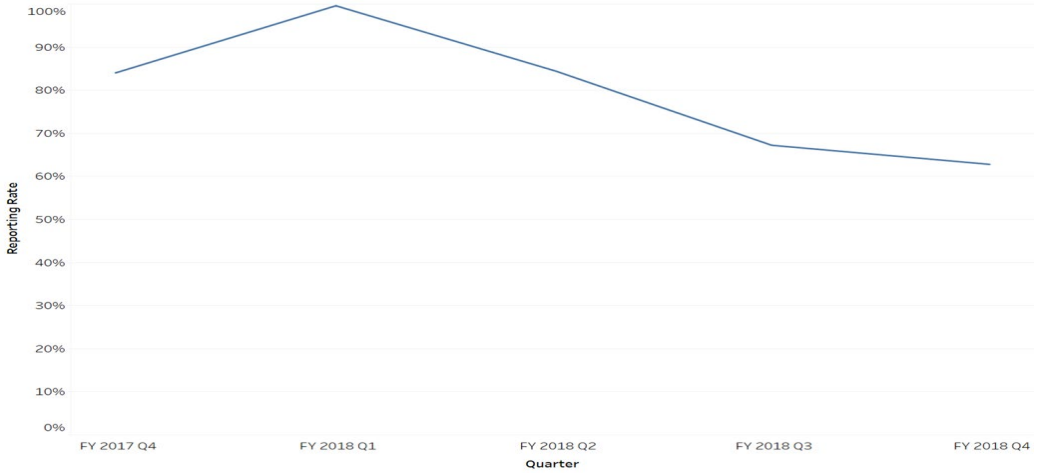
In DRC, malaria cases track fairly closely with ACTs consumed, and RDTs consumed track closely with number tested, based upon one database, DHIS2. However, there are some significant limitations in the ACTs consumed indicator as the current HMIS reporting forms do not include lines for the four formulations of AL that PMI procures. The PMI/DRC team is working on updating the stock page of the HMIS register so that it captures PMI-procured AL formulations. Once the InfoMed LMIS is fully rolled out, PMI/DRC will be able to triangulate between LMIS and DHIS2 data.

Key Question 4

What are the trends in LMIS reporting rates?

Supporting Data

Figure A51. LMIS Reporting Rate



DRC does not currently have a fully functioning LMIS system. All data for commodities is being pulled and assembled from the HMIS data.

Figure A52. DHIS-2 Reporting Rates

Conclusion

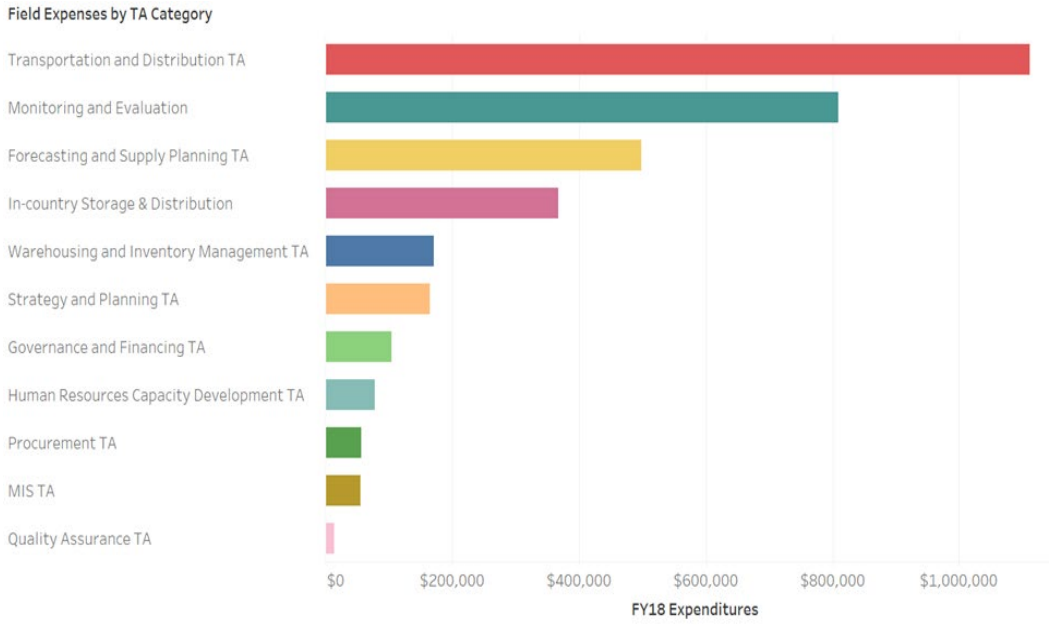
The Democratic Republic of Congo does not currently have a functional LMIS. To date, the team has used logistics and stock out data from the DHIS2 system. Since 2018 the PMI/DRC team has been supporting the establishment of an LMIS in DRC through the GHSC-TA contract. The InfoMed system collects data from health facilities without a computer and internet on a monthly basis with data from this level available for use around the 15th of the following month. InfoMed will allow for the triangulation between commodity stock data and clinical services data to allow health facility, health zone, and higher level staff to detect problematic sites from either a stock management perspective or from the clinical case management perspective.

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 make? In areas performing well, is it dependent on PMI/donor funding and so should be maintained?

Supporting Data

Figure A53. PMI Supply Chain Investments in FY 2018



Conclusion

Due to the vast size of DRC, the limited infrastructure, and extremely rural areas in most provinces, it costs significantly more to get PMI and other donor supported malaria commodities to the end user than many other PMI countries. According to GHSC-TA the Transportation and Distribution TA and In-country Storage & Distribution expenditures should be combined to reflect the total In-country Storage and Distribution costs during FY 2018. This demonstrates that proportionately more is spent on transportation and distribution than other technical assistance areas in DRC. It is important to note that the above graph does not include the transportation costs of getting the PMI products from the port of entry to the regional warehouses. Nor does it reflect the costs of getting PMI procured products from health zones to health facilities and community case management sites.

Key Question 6

Buffer stock for RDTs, ACTs, SP, and severe malaria medicines

Supporting Data

Persistent challenges in maintaining antimalarial commodity stock levels above minimum across all levels of the DRC supply chain system in PMI-supported provinces.

Conclusion

As previously indicated, the cost of procurement and distribution all the way to the end beneficiary in DRC is sizable. For example, roughly 57 percent of the FY 2019 MOP was for commodity, procurement, and transport costs. This has limited the PMI/DRC ability to fully fund annual RDT, ACT, SP, and severe malaria medicine needs as well as bednets. Without a buffer stock for RDTs and

antimalarial medicines and in light of less than a 12 month supply being procured due to budget limitations PMI-supported provinces often experience stock shortages before the next MOP year's orders begin to arrive.

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

NMCP objective
The DRC National Malaria Control Strategic Plan for 2016-2020 outlines several goals and objectives related to malaria surveillance, monitoring and evaluation. The overall goal is to strengthen surveillance systems in order to gather quality data for evidence-based decision-making.
NMCP approach
The DRC NMCP uses several complementary approaches to strengthen its SM&E capacity. ● Strengthen the routine monthly surveillance system, including timely and regular encoding of malaria HMIS data onto DHIS2, with an emphasis on improving data quality through increasing health worker capacity, periodic data audits, and data review meetings. ● Strengthen the weekly integrated disease surveillance and response system for epidemic response, focusing on regular analysis of weekly notifications and providing adequate response to malaria outbreaks. ● Strengthen malaria sentinel surveillance to collect information not captured through routine surveillance or surveys. ● Conduct operational research, as well as household surveys such as DHS, MICS, MIS, and other studies necessary to gather data on specific information needs.
PMI objective, in support of NMCP
PMI supports many components of the DRC NMCP's SM&E strategy in the nine PMI-supported provinces and at the national level. Due to TIP restrictions many SM&E activities stopped between March-October 2019. Now that DRC has received a TIP waiver, PMI will restart its support to SM&E activities in line with NMCP goals. ● PMI focuses on improving the routine surveillance system, strengthening the M&E capacity within the NMCP, and improving data quality across the nine supported provinces. ● PMI supports standard surveys as well as other studies and operations research.
PMI-supported recent progress (past ~12-18 months)
The following SM&E activities were supported by PMI over the past 12-18 months, however most activities stopped between March-October 2019 due to restrictions on assisting the DRC government

as a result of DRC's designation as a Tier 3 country under the Trafficking Victims Protection Act of 2000.

- PMI supported the Multiple Indicator Cluster Survey 2017-18, which is still being finalized, as well as the Service Provision Assessment 2017/18, which was finalized and released in 2019.
- PMI and the Global Fund are supporting semi-annual nationwide End Use Verification surveys in order to understand malaria stock and case management.
- PMI provided technical assistance to strengthen the central level NMCP M&E team's capacity through regular M&E technical working group meetings. These focused on analyzing malaria trends and mechanisms for improving health information.
- PMI also supported the M&E capacity at the provincial level in data quality review and use. This was accomplished through using nine provincial malaria SM&E advisors to assist with supportive supervision and coordination of malaria activities around data completeness, timeliness, compilation, and analysis at the provincial level. PMI/DRC continued to support the implementation of DHIS2 in nine provinces and joint supportive supervision by DPS and NMCP. Four provinces (Haut Katanga, Haut Lomami, Tanganyika, and Kasai Oriental) implemented recommendations from data demand and use assessments.
- Supported routine data quality assessments (RDQA) in Haut Lomami, Kasai Oriental, Lualaba, and Tanganyika provinces.
- Provincial advisors also supported health zone data analysis meetings in Haut Katanga, Haut Lomami, Tanganyika, Kasai Oriental, and Sud Kivu.
- Implemented Centers of Excellence for M&E activities in targeted health zones (Lubumbashi, Kapolowe, Katana, and Mikalayi), including DHIS2 data encoding support, data validation meetings, and joint supervision.
- PMI supported FETP trainees to work with the NMCP, although this support was stopped at the end of 2018 due to the TVPA restrictions.

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

Most malaria M&E activities were on-hold from March-October 2019 due to the TIP restrictions. Now that DRC has received a TIP waiver, PMI/DRC will restart its support to M&E activities. Over the next 12-18 months, the following activities are planned:

- Support for data analysis and use for program management at the NMCP central level. Support for supervision to the provincial level, coordination of M&E working groups, and facilitation of national-level reviews.

- Training and coaching on data analysis and use, general M&E support to the provincial NMCP health level. Development of standard dashboards and visualizations for malaria data review at the health zone and provincial levels. Provision of internet connection fees to facilitate data entry and transmission on DHIS2 for the 178 PMI-supported health zones. This also includes support for nine provincial SM&E advisors.
- Enhanced DQAs with register comparison and review, as well as examination of classification of severe malaria in health facilities. There will be three rounds of enhanced DQA per year, with three provinces chosen per round. In each province, 4-6 health zones will be purposefully sampled, and four health facilities will be chosen per health zone. This should result in approximately 20 health facilities chosen per province in a given round. The goal is to cover all nine PMI-supported provinces in a year.
- Support for 12 monthly data validation meetings at each of the 178 PMI-supported health zones and nearly 3,000 health areas, as well as data transmission to the health zone level. Provision of registers and forms for health facilities. Add one day to the monthly health zone validation meetings to focus entirely on malaria.
- Support for 2021 DHS survey.
- Support for Field Epidemiology and Laboratory Training Program, which will include FETP trainees working directly with the NMCP.

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.

Do you propose expanding, contracting, or changing any SM&E activities? If so, why, and what data did you use to arrive at that conclusion?

Most SM&E activities will be restarting in 2019 and were adapted and changed based on previous years of implementation. Therefore, the PMI/DRC team does not think there will need to be major changes in SM&E activities for FY 2020.

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 A54. Data Sources and Collection Activities 2015 - 2023

Data Source	Data Collection Activities	Year								
		2015	2016	2017	2018	2019	2020	2021	2022	2023
Household Surveys	Demographic Health Survey (DHS)							(X)		
	Malaria Indicator Survey (MIS)									
	Multiple Indicator Cluster Survey (MICS)				(X)					
	EPI survey									
Health Facility Surveys	Service Provision Assessment (SPA)				X					
	Service Availability Readiness Assessment (SARA) survey									
	Other Health Facility Survey									
Other Surveys	EUV	X	X	X	X	(X)	(X)	(X)	(X)	(X)
	School-based Malaria Survey									
	Other (Knowledge, Attitudes and Practices Survey, Malaria Behavior Survey)						(X)			
	Other (Malaria Impact Evaluation)		X							
Malaria Surveillance and Routine System Support	Support to Parallel Malaria Surveillance System [Sentinel Sites]	X*	X*	X*	X*	X*	(X)*	(X)*	(X)*	(X)*
	Support to HMIS	X	X	X	X	X	(X)	(X)	(X)	(X)
	Support to Integrated Disease Surveillance and Response (IDSR)	X*	X*	X*	X*	X*	(X)*	(X)*	(X)*	(X)*
	Other (Electronic Logistics Management Information System (eLMIS)				X	X	X	X	X	X
	Other (Malaria Rapid Reporting System)									

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

Conclusion

DRC has routine HMIS data readily available for analysis on DHIS2, and is working on establishing a functioning LMIS (InfoMed) system in the country to better track commodities. However, HMIS data quality continues to be an issue. In order to improve data quality, DQAs are being increased in number and targeted based on identified data quality issues. In addition, the Global Fund and GAVI are supporting a data quality review across the Global Fund provinces. The Global Fund is also analyzing the test positivity rate in two provinces. This will help DRC to understand the sustained high observed TPR in the country when greater seasonal variation would be expected.

Although there is data from the 2018 Service Provision Assessment, household data is not as recent. As the latest MICS survey (2017-2018) is not fully public, and the latest DHS is from 2013-2014, the PMI/DRC team is working with limited household survey data. Given the importance of timely household data, the team would also like to prepare for the next DHS in 2021. The malaria behavior survey planned with FY 2019 funds will also help fill some of the knowledge gaps on malaria attitudes and behaviors in the country.

Key Question 2

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

Supporting Data

Please note that many SM&E activities did not take place with FY 2018 funds, due to TIP restrictions.

Figure A55. Donor-Funded HMIS 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)	X	X	X	X	
Data quality assessments (separate from supervision – funding for travel to lower levels)		X	X	X	
Program monitoring and technical assistance (funding for travel to lower levels)	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)		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		
Human Resources (secondment of person in NMCP for SM&E, office/team for SM&E)	X	X	X		
Data Use (analysis, interpretation, visualization (dashboards, bulletins, dissemination/feedback to lower levels, decision-making)	X	X	X	X	
Policy guidelines and coordination (updating policies, guidelines, supporting sub-committee meetings, supporting participation in sub-committee meetings)	X	X	X	X	
External relations/Communications/Outreach (support travel to international meetings and publications)	X	X	X	X	
Support to annual operational plans for national malaria program	X	X	X	X	
Desk review to catch "logic errors system" (provide TA to catch logic errors)					
Admin 1 Level Province. PMI supports activities in 9 provinces while Global Fund supports activities in 16 provinces and DFID supports activities in 1 province.					
Registers (warehousing, printing, distribution)	X	X	X	X	
Data quality assessments (separate from supervision – funding for travel to lower levels)		X	X	X	
Program monitoring and technical assistance (funding for travel to lower levels)	X	X	X	X	
Training (funding for Zonal staff to conduct training at lower levels, capacity building (i.e. on the job training for Zonal level staff)		X	X	X	
Human Resources (secondment of person for malaria SM&E, office/team for SM&E)	X	X	X		
Data Use (analysis, interpretation, visualization (dashboards, bulletins), dissemination/feedback to lower levels, decision-making)	X	X	X	X	
Adaptation of national policy guidelines and coordination (adapting policies, guidelines, supporting sub-committee meetings, supporting participation in sub-committee meetings)		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		
Adaptation of checklists and job-aides		X		X	
Participation in national meetings (support for travel costs)		X	X	X	
Support to Annual Operational Plans for provincial Malaria Program		X	X	X	
Admin 2 Level (Zone)					
Data entry, summary, and transmission (training, re-training, computers, internet, tools)	X	X	X	X	
Supervision (training, traveling, supervision tools/checklists, create/design system for organized/methodical supervision)	X	X	X	X	
Data validation at the health area level (data validation activities before monthly data submission - organize health facilities)	X	X	X	X	
Monthly/Quarterly data quality review meetings at health zone level (venue, meeting support)	X	X	X	X	
Data Use (analysis, interpretation, visualization (i.e. dashboards), dissemination/feedback to facilities, decision-making)		X	X	X	
Human Resources (secondment of person for malaria SM&E, office/team for SM&E)					
Annual planning with province (support travel)		X	X	X	
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	X	
Data use (analysis, interpretation, visualization (dashboards), dissemination/feedback to CHWs, decision-making)	X	X	X	X	
Monthly/Quarterly data quality review meetings(support for travel)		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		
Community Level					
Data collection/entry and transmission (training, re-training, tools	X	X	X	X	
Data use (analysis, interpretation, decision-making)	X	X	X	X	
Monthly/quarterly data quality review meetings (support for travel)					

Conclusion

PMI and Global Fund both provide a wide range of SM&E support across the different DRC health system levels in their respective provinces. Many PMI/DRC SM&E activities were halted from March-October 2019 due to TIP restrictions. However, these activities will be restarted and refined using FY 2019 MOP funds.

Key Question 3

What are the outcomes of HMIS strengthening efforts?

Supporting Data

Figure A56. HMIS Strengthening Efforts, 2017- 2018

		2017	2018
Timeliness	% of reports received on time	90%	57%
Completeness	"Confirmed malaria cases for children under 5 years of age" was reported in X% of facility-months	95%	89%
Accuracy	From RDQA data in Haut Katanga, Kasai Central, and Sud Kivu (January 2018)		• Providers have solid understanding of indicator definitions and reporting guidelines. • Consistency between data verified at the site and DHIS2 varied across health centers. • Many health centers did not show good consistency between data in different source documents.

Conclusion

Both timeliness and completeness of data declined between 2017 and 2018, and timeliness dropped by a large amount. Although some health structures were added to HMIS over this time period, bringing the number from 16,698 to 17,089 health structures reporting into DHIS2 between 2017-2018, this cannot account for the large drops. These data indicate the need to continue focusing on improving DHIS2 implementation in DRC. Internet connectivity across all health zones and extreme infrastructure challenges continue to impede timely data submission and regular use of the platform. Additionally, the latest RDQA indicates that there are problems with data quality, as data sources/registers within many health structures are not consistent with each other or with DHIS2.

Key Question 4

Are there any other considerations that impact your funding allocation in this category?

Supporting Data

None

Conclusion

None

3.C. SOCIAL AND BEHAVIORAL CHANGE (SBC)

NMCP Objective

The NMCP's SBC strategic plan was last updated in June 2017 to align with the 2016-2020 National Malaria Control Strategic Plan. In this plan, the NMCP objective was to ensure at least 75 percent of the population at risk is knowledgeable about the modes of malaria transmission, malaria prevention, and case management measures by the end of 2020. The overall objective of the SBC strategic plan is to have at least 80 percent of the population at risk of malaria know the modes of transmission, prevention, and care of malaria. The specific objectives are to ensure that:

- At least 80 percent of the population at risk use preventive measures against malaria, specifically, sleeping under an ITN, accepting IRS, and using IPTp
- At least 80 percent of all people with fever seek care and are effectively managed, including receiving appropriate diagnosis and treatment
- SBC, advocacy, and social mobilization activities are carried out at all levels of the health system and at the community level.

An updated SBC strategic plan will be developed when the updated National Strategic Plan is finalized.

NMCP Approach

The SBC strategic plan is based on an approach emphasizing that behavior change depends on the awareness of parents, caregivers and other family members of the correct and systematic use of ITNs, hygiene and sanitation in the household, rapid care seeking at the onset of fever, and administration of IPT to pregnant women.

The DRC SBC strategy has five pillars including ITNs, IPTp, RDTs, treatment, and advocacy. Following are the specific SBC objectives:

- From 2017 to 2020, at least 80 percent of household members will sleep each night under the LLIN particularly pregnant women and children under 5 years of age;
- By 2020, at least 60 percent of pregnant women will have received 3 or 4 doses of IPTp;
- By 2020, 80 percent of providers will use RDT in all cases of fever and will treat any case with RDT positive according to the national protocol;
- By the end of 2020, 80 percent of people will be attending health facilities early (within 24 hours of onset of fever) and will take the full ACT dose prescribed by the provider;
- By 2020, parliamentarians will vote for a law removing tariffs related to antimalarial inputs in accordance with international commitments ratified by the DRC (Abuja Declaration 2000);
- By 2020, central and provincial governments will increase the health budget by 5 to 10 percent for scaling up interventions;
- By 2018, private sector / business leaders, members of civil society, association leaders, opinion leaders, celebrities will contribute (funding or logistics) to the implementation of the 2016 - 2020 National Malaria Strategy.

The NMCP's approach to SBC activities consists primarily of interpersonal communications (e.g., household visits) and mass media. Donors support SBC activities for prevention and case management in their respective geographic focus areas.

There is currently no national SBC coordinating committee based at the NMCP, but PMI will support the creation of an integrated SBC technical working group in the coming year.

PMI Objective in Support of NMCP

Key areas of PMI support for SBC include capacity strengthening at both national and provincial levels, tools design and implementation, close coordination with service delivery, and monitoring and evaluation. PMI SBC support has more recently focused on formative research to identify facilitators and barriers of key malaria behaviors and to generate insights to inform SBC activities.

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

PMI supported the following activities in the last 12-18 months:

- Completed a capacity assessment of the National Health Communication and Promotion Program
- Conducted an inventory of SBC tools and messages focused on malaria treatment and prevention in the DRC
- Reached 19,790 people with messages on malaria treatment and prevention using short message service (SMS)
- Raised awareness of 101,230 individuals including 42,842 men and 58,388 women in 15 health zones on prompt care seeking

Notable challenges that slowed implementation:

- Socio-political issues, including elections in January 2019, caused start-up delays for key partners including longer than anticipated timelines for hiring staff and establishing satellite offices.
- Many of the inventoried messages and media were out of date and had not been pre-tested before they were released.

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

PMI is currently or will soon be supporting the following activities:

- Conduct SBC training sessions at the national and provincial levels, including monitoring and evaluation of SBC activities;
- Update the new SBC strategy to complement and align with the new national malaria strategy 2020-2023;
- Develop an SBC message harmonization guide, including malaria;
- Recruit and deploy an SBC Innovations Team to serve as SBC champions in different sectors of government and civil society;
- Conduct a rapid formative assessment on the gap between high ANC attendance and low IPTp coverage;
- Conduct mixed methods formative research to understand the determinants of facility-based health worker case management and reporting practices;
- Plan and implement the Malaria Behavior Survey to identify determinants of malaria behaviors;
- Implement a monitoring activity to assess discrepancies between reported and observed net use behaviors.

- Train *relais communautaires* (community volunteers) and facility-based health providers on SBC (interpersonal communication and use of educational materials for service communication);
- Conduct outreach activities to raise household members and community awareness on the priority behaviors;
- Support NMCP to develop specific malaria communication campaigns and materials including design of the SBC interventions and tools, pre-testing, production, and dissemination jointly with the service delivery mechanism.

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.

Do you propose expanding, contracting, or changing any SBC activities? If so, why, and what data did you use to arrive at that conclusion?

While the focus for FY 2019 activities is on generating insights through formative data collection, in FY 2020, emphasis will shift to intensify implementation and conduct robust monitoring to adjust activities as needed. 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 A57. Prioritized Behaviors with FY 2020 Funds

Behavior	Target Population	Geographic Focus	Justification
Correct and consistent net use and net care	Household decision-makers about who uses nets	9 PMI focus provinces	Based on the results of the recent ITN durability study encouraging consistent net use and care of nets is identified as a priority behavior for DRC. With the ongoing rolling distribution campaigns, PMI/DRC can expect access to increase further, but will need to also ensure those new nets are being used properly. Currently, ITNs are the sole vector control activity widely implemented in DRC. The Malaria Behavior Survey will provide important insights to guide activity design around net use.
Prompt care-seeking for fever	Household decision-makers about when and where care is sought	9 PMI focus provinces	The most recent household survey data show that only 46% of children sought care for fever, and the data are not yet available on how many sought care the same or next day. The 2013/14 DHS data estimated that 52% of households in the lowest wealth quintile choose traditional or self-treatments compared to 24% of higher wealth quintiles. In addition to potential financial barriers, it is also known that over 70% of households live more than 5 km from a health facility. PMI/DRC knows that access to services is a major barrier and hopes to begin addressing this issue by expanding community-based services. But beyond access, there are likely other social and internal barriers to prompt care-seeking from qualified providers that need to be addressed with SBC interventions.
Health worker adherence to malaria management guidelines for testing and treatment	Service providers in the public/ non-profit sector Care-takers/ patients seeking services	9 PMI focus provinces	The most recent household survey data show that 22% of children with fever received a finger/heel stick, and of those receiving antimalarials, only 29% received an ACT. There is progress that needs to be made in providing effective malaria case management services, particularly in health facilities.

Conclusion

The priority behaviors described above are the behaviors that are considered most critical to the success of malaria efforts in the DRC. They have been identified through discussions with the NMCP and partners, and based on review of existing data from a variety of sources, including recent household survey data, the 2018 SPA, OTSS reports, and other partner reports. While there are still data gaps on the determinants of key behaviors, the behaviors themselves are the ones PMI/DRC feel should and can be improved if a coordinated strategy is clear and specific activities are based on formative data. When the full and final 2017/18 MICS results are made available, PMI will work with the NMCP and partners to reassess these priority behaviors to ensure SBC investments are appropriately targeted. With the MBS results and additional insights that will be generated through other data collection activities (e.g., examination of the ANC-IPTp gap, the mixed-methods assessment

of provider behaviors), PMI and partners will be able to tailor SBC interventions based on solid formative data. With these efforts, PMI anticipates positive change for these priority behaviors.

Note that prevention of malaria in pregnancy will also be emphasized and leveraged through the care-seeking and health worker interventions. In order to improve care-seeking, which is basically an effort to increase demand for services, access issues will be addressed through expansion of the CHW program. A focus on strengthening the role of CHWs in community health will also expand opportunities for service communication and health promotion for ITN use and ANC attendance. Especially for facility-based providers, emphasis will be placed on improving the patient-provider interaction to foster positive relationships between communities and their healthcare professionals.

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 A58. Summary of Determinants and Gaps for FY 2020 Prioritized Behaviors

Behavior	Key Facilitators	Key Barriers	Knowledge Gaps
Correct and consistent net use and net care	Net access; Positive attitudes towards nets	Unknown	More data are needed on determinants associated with use and non-use of nets, as well as on care of existing nets in the household. The net use: access analysis for the most recent data point (2017-18 MICS) is not yet available and will provide additional insights on behavior gaps particularly for sub-groups of women of reproductive age, children under five, and school-aged children.
Prompt care-seeking for fever	Health facility "readiness" to provide malaria services (commodity availability, trained personnel, etc.)	Lack of access to services; preferences for self-treatment and/or traditional treatments	More data are needed on determinants of prompt care-seeking for fever
Health worker adherence to malaria management guidelines for testing and treatment	Health facility "readiness" to provide malaria services (commodity availability, trained personnel, etc.)	Commodity stockouts; health worker resistance to change/adapt to updated guidelines for testing and treatment	More data are needed to understand the complex behavioral determinants that influence provider adherence to national case management guidelines.

Conclusion

There are limited DRC-specific data on key facilitators, barriers, and behavioral determinants for the priority behaviors identified here. The Malaria Behavior Survey, planned with FY 2019 funds, will

provide valuable insights on the drivers associated with these priority behaviors of net use/net care and care seeking. These data will be complemented by additional in-depth bi-annual (dry and rainy season) monitoring data to assess observed net use compared to reported net use. This monitoring activity will give us a better sense of whether the ITN use: access ratio can be interpreted with confidence regarding whether or not behavioral gaps exist around net use. In addition, a mixed methods approach will be used to better understand the determinants of health worker behaviors in the service delivery sphere. Another important data source that should be leveraged to inform SBC activities are supervision reports and documents derived from case management activities conducted with CHWs and facility-based providers. These data collection activities will generate important data to inform the design and focus of SBC implementation; with FY 2020 SBC investments, data collection will shift to monitoring the implementation of activities, and to adjust programming as needed to reach desired behavioral outcomes.

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

DRC has a national communication unit within the MoH referred to as the *Programme National de Communication pour la Promotion de la Santé* (PNCPS); the NMCP also has a communication division dedicated to SBC. These structures have a mandate to coordinate SBC partners and interventions at all provincial and central levels. There is a need to support the NMCP's SBC unit to ensure it is providing leadership and playing a coordinating role for implementing partners and donors developing SBC activities throughout the country. In addition to national-level coordination, provincial coordination groups would strengthen SBC implementation at the peripheral levels to ensure that activities are coordinated and in harmony with the NMCP's objectives and priorities. A key capacity building activity that PMI will support is the development of a network of SBC champions across health sectors in both government and civil society. This group will form the Innovations Network which has two primary objectives:

- Share SBC knowledge, insights, and best practices for successful implementation
- Identify opportunities to apply SBC solutions to promote priority behaviors

Conclusion

PMI will support the NMCP to coordinate technical partners through routine meetings of the national SBC coordinating committee. It will also identify capacity building opportunities targeted to SBC focal points in the PMI provinces. PMI will also support NMCP SBC focal point participation in global meetings and trainings, including the RBM SBC Working Group, to ensure they have opportunities to engage in global exchange of ideas, best practices, and lessons learned for malaria SBC. There will also be a strong emphasis on capacity building to analyze and interpret the MBS results once they are available.

Key Question 4

Are there any other considerations that impact your funding allocation in this category?

Supporting Data

None

Conclusion

None

3.D. PROGRAM EVALUATION AND OPERATIONAL RESEARCH

NMCP objective
In the Malaria National Strategic Plan for 2016-2020, the objective of operational research is to provide the information necessary for informed decision-making on priority topics that may not be captured through the country's surveillance systems. This includes support for routine surveys, like the DHS and MICS, as well as smaller studies conducted with local research institutions to address specific information needs.
NMCP approach
In the 2016 NMCP Surveillance and M&E Guide, the steps for planning, implementing, and monitoring operational research are listed, as well as the eight principal domains for operational research. These include malaria prevention and case management, behavior change communication, vector control, etc. Additionally, in 2014, The NMCP developed a plan for malaria studies conducted between 2015 and 2020 to support its national strategy. This plan includes 25 priority studies and aims to fill the gap in malaria operational research and M&E needs.
PMI objective, in support of NMCP
PMI supports priority NMCP research and M&E activities, including monitoring of insecticide resistance, ITN durability monitoring, end use verification surveys, therapeutic efficacy studies, and population-based surveys such as the MICS.
PMI-supported recent progress (past ~12-18 months)
● A durability monitoring study was recently completed that provided the NMCP with evidence on the physical and insecticidal durability of DawaPlus® 2.0 and DuraNet nets distributed during the 2016 mass campaign in neighboring health zones in Sud Ubangi and Mongala Provinces. The results suggest the importance of improving net care behaviors and the potential need to do more frequent mass distribution campaigns. ● DRC PMI is finishing the design of a study to compare the impact of PBO versus standard mosquito nets on entomological indicators as well as parasitemia prevalence in pregnant

women in Sud Ubangi province, in collaboration with the Liverpool School of Tropical Medicine, Against Malaria Foundation, and the Global Fund.

- DRC PMI supported the finalization of the 2017-2018 SPA, which was publicly released in 2019. The team also supported the finalization of the MICS 2017-18 survey, although the final report has yet to be released.

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

Over the next 12-18 months, PMI/DRC has the following operations research activities planned:

- Support TES in two of six sites to determine the efficacy of AS/AQ and AL for the treatment of uncomplicated *P. falciparum* malaria in children 6 to 59 months with a follow-up period of 28 days. The study is expected to begin in early 2020 and last approximately nine months.
- Support durability monitoring of Veeralin (Alphacypermethrin+PBO) and SafeNet (Alphacypermethrin) nets in Tanganyika province.
- Start implementation of the Sud Ubangi study comparing PBO versus standard mosquito nets on epidemiological endpoints in pregnant women and entomological endpoints. The study is expected to last three years, and the DRC PMI contribution focuses on the entomological monitoring of the nets, with comparative annual resistance marker frequency in *An. gambiae* measured using molecular surveillance diagnostics as the primary endpoint. Other entomological endpoints will include abundance of female Anopheles malaria-vector mosquitoes, entomological inoculation rate, net efficacy, and lifespan, etc.
- PMI/DRC will support a Malaria Behavior Survey in 2020.
- Mixed methods data collection will be used to understand the determinants of facility-based health worker case management and reporting practices. This will complement the evaluation of automated readers to assess test positivity rates and health worker diagnostic, treatment, and reporting practices (see below).
- Evaluate use of automated readers as a data validation tool to assess data quality, specifically reported trends in test positivity rates over various seasonal transmission intensities.
- Conduct semi-annual monitoring (dry and rainy season) of reported and observed household net use.

PMI Goal

PMI supports the NMCP to carry out OR/PE to inform programming and decision-making.

Do you propose expanding, contracting, or changing any program evaluation and operational research activities? If so, why, and what data did you use to arrive at that conclusion?

Only the bednet durability monitoring study in Tanganyika and the Sud Ubangi study on the impact of PBO versus standard nets are likely to continue with FY 2020 funding. The rest of the research activities should end after a year, and their results should help inform FY 2020 implementation.

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

The DRC PMI team works to prioritize filling operational research gaps, and is supporting the NMCP and local subject matter experts to conduct well-designed studies that meet the needs of decision-makers. This process involves identifying areas where there are research gaps that fit within the PMI portfolio. The DRC PMI team makes an effort to work with other donors, such as the Global Fund, to maximize resources and ensure there is no duplication of program evaluation and operations research efforts. The following table provides an overview of PE/OR currently being conducted in DRC based upon identified needs.

Figure A59. PE/OR Currently Conducted in Country with USG, GF, Multilaterals or Other Major Donors.

Source of Funding	Implementing institution	Research Question/Topic	Current status/ timeline
USG, Global Fund, Liverpool School of Tropical Medicine, AMF	PMI VectorLink/INRB, Liverpool School of Tropical Medicine, Kinshasa School of Public Health	Compare the impact of PBO versus standard mosquito nets on entomological indicators as well as parasitemia prevalence in pregnant women in Sud Ubangi.	Design Phase, Timeline: November 2019-October 2022
USG	PMI VectorLink	Durability monitoring of Veeralin and SafeNets in Tanganyika	Design Phase, Timeline: TBD based on mass campaign schedule
USG, Global Fund, WHO	University of Kinshasa	Evaluation of the therapeutic efficacy and safety of ASAQ and AL combinations for the treatment of uncomplicated Plasmodium falciparum malaria	Design Phase, Timeline: November 2019-August 2020
Global Fund	Swiss TPH	Understand factors related to the high malaria test positivity rate as measured by RDTs in the DRC, including both data quality and quality of care elements.	On-going: October 2019-April 2020

Source of Funding	Implementing institution	Research Question/Topic	Current status/ timeline
USG	Johns Hopkins	Implement malaria behavior survey	Design Phase: Timeline - 2020
USG	Johns Hopkins	Understand determinants of health worker case management and reporting practices	Design Phase: Timeline - 2020
USG	UNC	Evaluate use of automated readers as a data validation tool to assess data quality, specifically reported trends in test positivity rates over various seasonal transmission intensities	Design Phase: Timeline - 2020
USG	Johns Hopkins	Conduct bi-annual monitoring (dry and rainy season) of reported and observed household net use.	Design Phase: Timeline - 2020
UNITAID	Jhpiego	Feasibility of community IPTp. Four-country study.	Ongoing 2017 - 2022

Conclusion

There are no new proposed areas of program evaluation or operations research for FY 2020 funds. Several research areas were prioritized with FY 2018 or FY 2019 funds, and the results will either inform future implementation or research. Other areas of research that are multi-year studies will continue as planned with FY 2020 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

None

Conclusion

None

Key Question 3

Are there any other considerations that impact your funding allocation in this category?

Supporting Data

None

Conclusion

None

3.E. OTHER HEALTH SYSTEMS STRENGTHENING

NMCP objective
The objective of the NMCP is to strengthen its technical and managerial capacity at central and provincial levels to effectively implement the strategic plan and reach their objectives.
NMCP approach
● Strengthen its institutional and technical capacity; ● Develop a business plan to mobilize internal and external resources; ● Improve malaria coordination at national, provincial, and health zone levels.
PMI objective, in support of NMCP Infrastructure
● Provide the DRC NMCP with an adequate and conducive working environment. ● Ensure malaria activities are well coordinated at provincial and lower levels of the health system. ● Support implementation of the 2014 NMCP institutional audit recommendations. ● Advocate for the implementation of the business plan developed jointly with RBM.
PMI-supported recent progress (past ~12-18 months)
● PMI supported taskforce and malaria technical working groups (case management, vector control, surveillance monitoring and evaluation and supply chain) meetings at national and provincial levels and has supported monthly planning and data validation meetings at health zone levels in all PMI supported provinces; ● PMI supported malaria management and malariology training in selected provinces to strengthen the capacity of provincial malaria coordinators and health zone managers in malaria program management; ● PMI supported the equipment of the NMCP's conference room and provided the office with laptops, video projectors and other communication materials. ● PMI's support to this activity line was hindered by the TVPA that prevented PMI to provide any kind of support to the DRC government.

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

- PMI will second a senior manager at the NMCP to provide close organizational, managerial, and technical assistance to the NMCP;
- With the lift of the TVPA sanctions on DRC, PMI will reintegrate malaria provincial advisors in the nine PMI-supported provinces.
- The NMCP is in the process of developing a new malaria strategic plan to align with the Country's Health and Social Development Plan (PNDS). PMI will support the development of the new national malaria strategic plan and its implementation.
- Continue with the malaria health manager training. PMI will continue to expand the malariology training to other provinces not yet covered and provinces where trained staff have been replaced;
- As mentioned in the country inventory, The NMCP's office is not a conducive working environment for the staff. Thus, PMI, in collaboration with GF, is advocating for a new office space for NMCP. The Ministry of Health has requested GF and PMI to support a temporary relocation of the program until the MOH finds a new office that better meets the needs of the program. GF will support the renting of a temporary office space, while PMI will support the office equipment. This activity will be supported using reprogrammed FY 2018 and/or FY2019 MOP funds.
- PMI has supported an institutional and organizational audit of the NMCP in 2014 but the recommendations have not been implemented. PMI will reactivate this audit document and support the implementation of the key recommendations. This has been discussed with both the Minister of Health and the Secretary General as key to guarantee adequate coordination of the resources being allocated to the malaria control fight in the country;
- PMI will also support equipment for malaria coordination offices in PMI-supported provinces;
- PMI will continue to support the malaria task force and malaria technical working group meetings at the national level as well as provincial and health zone level task force and data validation meetings in all PMI-supported provinces.

PMI Goal

Build the NMCP's technical and managerial capacity to adequately coordinate and implement malaria activities at all levels of the health system and bring the fight against malaria to a higher level of attention of the government of DRC.

Key Question 1

Enhanced and additional malaria prevention and treatment activities in the context of Ebola virus disease outbreaks and preparedness.

Supporting Data

There has been an ongoing Ebola virus disease (EVD) outbreak in Eastern Congo for over a year, and there is the potential for other EVD outbreaks, and other epidemic or conflict-related threats in other DRC provinces.

Conclusion

In the context of the ongoing EVD outbreak in Eastern Congo, USAID/DRC is preparing for a strategic pivot to this region to stabilize and reduce fragility in this corridor. This effort targets Haut Uele, Ituri, Nord Kivu, Sud Kivu, and Tanganyika provinces. PMI is currently working in Sud Kivu and Tanganyika provinces. The Global Fund is working in the other three provinces for malaria control and prevention. PMI will coordinate with Global Fund if there are any activities above and beyond the standard package of malaria interventions for these or any other provinces as has been done previously (e.g. ITN distribution in Beni health zone and Butembo Ebola treatment centers). PMI/DRC will use existing available resources in the country to the extent possible to respond to such needs. PMI/DRC will also coordinate with the Office of Foreign Disaster Assistance in DRC, the USG lead for emergency situations.

Key Question 2

Are there any other considerations that impact your funding allocation in this category?

Supporting Data

None

Conclusion

None

ANNEX B: COUNTRY PROGRAM INVENTORY

The MOP seeks to facilitate a consultative, collaborative process between PMI, the NMCP, and other partners, where relevant. This section outlines a high-level program inventory along key intervention areas, and is intended to structure discussions around the relative strengths and challenges facing a program, as well as prioritization and opportunities to drive catalytic impact with specific investments.

Key:

Example score

Figure B1. Category: Vector Control

Activity	Metrics/ Criteria	Relative Continuum, for discussion purposes				
		1	2	3	4	5
Entomological Monitoring	Insecticide Resistance monitoring	No insecticide resistance monitoring conducted	Limited insecticide resistance monitoring conducted on an ad-hoc basis	Insecticide Resistance monitoring conducted on an annual basis in a limited number of sites, not covering all administrative units. Occasional monitoring of molecular mechanisms	Insecticide resistance monitoring conducted in a greater number of sites on an annual basis with some collaboration with other partners, routine monitoring of some resistance mechanisms	Regular high quality insecticide resistance monitoring done in multiple sites per administrative division, consideration of molecular mechanisms and bioassay data, collaboration with other partners and NMCP
	Insectary	No functioning insectaries in country	Insectary present, but frequent ruptures in rearing and contamination of strains, frequent challenges in meeting needs	Insectary present, full-time staff present, some capacity for strain verification, sometimes challenges to get enough mosquitoes, occasional contamination	One or more insectary present, regular verification, rare challenges in getting sufficient mosquitoes, some capacity for strain verification	Highly functioning insectaries with verification of strains, capacity for rearing wild strains, quality controls in place
	Data-based vector control decision making	No consideration of entomological data when making decisions	Limited review of data, reliance on outdated data, uncoordinated analysis of data with limited collaboration with partners	Irregular and incomplete review of data from multiple partners, sometimes in collaboration with research and funding partners	Collaborative but irregular review of entomological data, sometimes providing timely evidence for decisions	Collaborative regular review of entomological data from multiple sources when making decisions about vector control
	Vector bionomics monitoring or research	No research or longitudinal monitoring done in country	Limited longitudinal monitoring and research done in country	Regular vector bionomics monitoring and vector control research done in country, but generally not having an important role in decision making	Regular vector bionomics and vector control research conducted in country but not sufficient to respond to all major needs of the national program	Regular monitoring driven by program priorities conducted alongside research done in country to provide timely data on the best malaria vector control
	Institutionalization of funding	No resources	Only supported by external partners, no host government funding	Some host country government funding	>50% funded by host country government	Fully funded by host country government

Activity	Metrics/ Criteria	Relative Continuum, for discussion purposes				
		1	2	3	4	5
ITNs	Consistent distribution channels, in accordance with national strategy	Infrequent campaigns with no continuous distribution	Regular (e.g. every 3 years) campaigns, no continuous distribution	Regular campaigns, inconsistent continuous distribution	Regular campaigns, plus at least 1 well- managed continuous distribution channel	Regular, well- executed campaigns and well-managed continuous distribution channels
	Regular supervision of routine ITN distribution (e.g. HFs)	No HFs regularly supervised in ITN distribution	0-25% of HFs regularly supervised in ITN distribution	25-50% of HFs regularly supervised in ITN distribution	50-75% of HFs regularly supervised in ITN distribution	75-100% of HFs regularly supervised in ITN distribution
	ITN distribution reporting capabilities	Quantities of ITNs distributed not reported at all into LMIS (or other system)	Some quantities of ITNs distributed reported routinely	Some quantities of ITNs distributed reported routinely but cannot be disaggregated by channel	Quantities of ITNs distributed reported routinely and disaggregated by channel	All ITNs distributed captured routinely, disaggregated, and reported electronically
	Capacity to use data to appropriately target and rotate new types of nets	N/A	No capacity	Limited capacity	Some capacity	Good capacity
IRS	Host country government's IRS implementation capacity	N/A, no host country government implemented spray campaign	Host country government has very limited capacity to implement minor aspects of spray campaign	Host country government has capacity to implement some aspects of spray campaign	Host country government has capacity to implement most aspects of spray campaign	Host country government implements independent spray campaign
	Institutionalization of funding	N/A, no IRS conducted in country	No host country government funding, only supported by external sources (e.g. PMI, GF, mining companies)	Limited host country government funding in addition to external sources	>50% funded by host country government in addition to external sources	Fully funded by host country government, no external sources
	Coverage of Government-Implemented Spray Campaign	N/A, no government-implemented spray campaign	Spray coverage not reported	85+% coverage in some government-sprayed areas	85+% coverage in most government-sprayed areas	85+% coverage in all government-sprayed areas

Figure B2. Category: Case Management

Activity	Metrics/ Criteria	Relative Continuum, for discussion purposes				
		1	2	3	4	5
Community-based CM, if in national strategy	Coverage of CHWs trained in and providing CM (geographic or numerical target)	No CHWs conducting CM	0-25% of national target met	25-50% of national target met	50-75% of national target met	75-100% of national target met
	Regular supervision of CHWs in CM (regular defined as per national QA/QC guidelines)	No CHWs regularly supervised in CM	0-25% of CHWs regularly supervised in CM	25-50% of CHWs regularly supervised in CM	50-75% of CHWs regularly supervised in CM	75-100% of CHWs regularly supervised in CM
	CHW reporting capabilities	CHW-managed cases not reported into HMIS	Some CHW-managed cases routinely reported into HMIS	Cases routinely reported into HMIS but cannot be disaggregated from HF-reported cases	Cases routinely reported into HMIS and can be disaggregated from HF-reported cases	All CHW case data routinely captured and reported electronically
	Institutionalization of funding (salaries and/or other support)	No resources	Only supported by external partners, no host government funding	Some host country government funding	>50% funded by host country government	Fully funded by host country government
Facility based CM	Access to HF-based care (within 5 km of a health facility or as per national definition)	0-20% of population has access to HF	20-40% of population has access to HF	40-60% of population has access to HF	60-80% of population has access to HF	>80% of population has access to HF
	Regular* supervision of public HFs in CM	No HFs regularly supervised in CM	0-25% of HFs regularly supervised in CM	25-50% of HFs regularly supervised in CM	50-75% of HFs regularly supervised in CM	75-100% of HFs regularly supervised in CM
	Drug resistance monitoring	No TES performed in last 3 years	TES performed in last 3 years but results not available	Recent TES results available (within last 3 years) but no training in molecular testing	Recent TES results available (within last 3 years) and in-country staff trained in molecular testing	Recent TES results available (within last 3 years) and in-country capability for molecular testing

Figure B3. Category: Drug-Based Prevention

Activity	Metrics/ Criteria	Relative Continuum, for discussion purposes				
		1	2	3	4	5
SMC (where applicable)	Geographic scope	No eligible districts receiving SMC		50% eligible districts receiving SMC		All eligible districts receiving SMC
	Coverage in targeted areas (% of eligible children 3-59 months who received complete SMC courses for all 4 rounds)	<60%	60-69%	70-79%	80-89%	90%+
	Institutionalization of funding	No resources	Only supported by external partners, no host government funding	Some host country government funding	>50% funded by host country government	Fully funded by host country government
MIP	National policy exists for malaria prevention in pregnancy	No policy	Policy exists but is not comprehensive (does not cover all aspects of MIP: ITN, IPTp and case management)	Comprehensive policy exists for prevention (ITNs, IPTp) and case management but not all WHO recommendations are included	Policy meets current WHO recommended MIP prevention	Comprehensive, WHO-aligned policy is actively implemented
	Country policy adoption/adaptation of ANC guidelines with at least 4 recommended contacts	No policy	Country has started discussions and consultations for adopting the new ANC guidelines and recommendations	Country has policy specifying ANC contacts but no provision for early delivery of IPTp and is not able to systematically track ANC visits in HMIS	Country policy specifies ANC contacts and has provision for delivery of IPTp at 13-16 weeks but cannot track all ANC visits in HMIS	Country policy specifies the number of contacts be delivered during pregnancy and has a provision for delivery of IPTp at 13-16 weeks and is able to track ANC visits in HMIS.

Activity	Metrics/ Criteria	Relative Continuum, for discussion purposes				
		1	2	3	4	5
	National MIP working group established and coordinating effectively	No working group established	Working group formed and meets on an ad hoc basis, TORs are established	Working group engages in regular coordination but does not have mechanisms to ensure programmatic integration across technical areas	Working group coordinates at the national level only with Malaria and Maternal Health and has limited mechanisms for ensuring programmatic integration across technical areas	Working group engages in regular coordination at national and sub-national level with Malaria and Maternal Health and has mechanisms to ensure programmatic integration across technical areas.
	Supportive MIP supervision conducted	No HFs regularly supervised in MIP	0-25% of HFs regularly supervised in MIP	25-50% of HFs regularly supervised in MIP	50-75% of HFs regularly supervised in MIP	75-100% of HFs regularly supervised in MIP
	Routine SP resistance monitoring via biomarkers conducted	No SP resistance monitoring conducted	SP resistance monitoring conducted in the last 6-10 years	SP resistance monitoring conducted in the last 4-5 years	SP resistance monitoring conducted in the last year 3 years	SP resistance monitoring conducted in the last 3 years and results published or being published.

Figure B4. Category: Supply-Chain

Activity	Metrics/ Criteria	Relative Continuum, for discussion purposes				
		1	2	3	4	5
Supply Chain	Forecasting and Procurement Planning	Ad hoc forecasting based on poor, inadequate, or inaccessible data Insufficient skills for selecting and implementing appropriate forecasting methodologies. Procurement plans are not developed from forecasts No coordination among procurers	Annual forecasting and supply planning done but is based on poor, inadequate, or inaccessible data Locally based skills in quantification are developing Review of procurement plans is irregular. Coordination among procurers is limited	Annual forecasts incorporate service and/or/consumption data Supply plans updated semi-annually and incorporate review/revisions of available funding Coordinated procurement planning done at the national level (and regional level, if the health system is decentralized) and among procurers	Semi-annual forecasts incorporate service and/or/consumption data, account for seasonality Supply plans updated quarterly and incorporate review/revisions of available funding Coordinated procurement planning done at the national level (and regional level, if the health system is decentralized). Identified commodity gaps effectively communicated to stakeholders for purposes of resource mobilization	Near real-time demand/consumption, enhanced with additional programmatic contributions, drives monthly forecasting Forecasting and supply planning-specific software used and outputs visible across networks. Supply plans updated monthly and incorporate review/revisions of available funding Coordinated procurement planning done at the national level (and regional level, if the health system is decentralized). Identified commodity gaps effectively communicated to stakeholders for purposes of resource mobilization. Outputs shared through global platforms

Activity	Metrics/ Criteria	Relative Continuum, for discussion purposes				
		1	2	3	4	5
	Warehousing/ Storage	Quality of infrastructure and operations at all stock holding levels (Central, Sub-central/facility) compromises ability to ensure commodities are adequately protected from damage, deterioration, and loss. Unable to locate stock by batch in central/mid-level stores/warehouses.	Quality of infrastructure and operations in at least one stock holding level (Central, Sub-central/facility) ensures that commodities are adequately protected from damage, deterioration, and loss. Paper-based inventory management system. No SOPs.	Quality of infrastructure and operations in at least two stock holding levels (Central, Sub-central/SDP) ensures that commodities are adequately protected from damage, deterioration, and loss. Warehousing SOPs exist. Able to track inventory level with central level WMS but information is not routinely shared across warehouses. Some maintenance occurring Limited ability to scale storage capacity	Quality of infrastructure and operations at all stock holding levels (Central, Sub-central/SDP) ensures that commodities are adequately protected from damage, deterioration and loss Stock data is digitized in at least two stock holding levels Some routine maintenance occurring Storage capacity scaled through contracting of third party logistics providers (3PLs)	Quality of infrastructure and operations at all stock holding levels (Central, Sub-central/SDP) ensures that commodities are adequately protected from damage, deterioration and loss. Storage infrastructure and operations adhere to Good Warehousing Practices and/ or meet in-country compliance standards Stock data is digitized at all stock holding levels and near real-time stock visibility available across networks Routine and predictive maintenance budgeted for and institutionalized Storage capacity is logically located and can be effectively scaled with 3PLs

Activity	Metrics/ Criteria	Relative Continuum, for discussion purposes				
		1	2	3	4	5
	Routine distribution/ resupply between stock holding levels	No routine requisition and resupply schedule between stock holding levels No resources routinely available and allocated for transportation from higher to lower stock holding levels	Routine requisition and resupply between at least two stock holding levels according to a schedule Resources for transportation from higher to lower stock holding levels provided on ad hoc basis	Routine resupply between all stock holding levels according to a schedule Allocated resources for transportation from higher to lower stock holding levels provided on an irregular basis and resupply often achieved through unplanned means Resupply performance monitored post-activity	Routine resupply between all stock holding levels according to a schedule shared with all levels and informed by accurate demand signals Allocated resources for transportation provided on a regular basis and augmented with 3PLs Resupply performance monitored real-time	Routine resupply between all stock holding levels according to a schedule shared with all levels and informed by accurate, timely, demand signals Robust emergency and inter-facility resupply mechanisms are in place Allocated resources for transportation available internally or outsourced with 3PLs. Resupply transaction data is digitized for all stock transfers Near real-time visibility into upstream and downstream activities Resupply operations adhere to GDP and or meet in-country compliance standards for maintaining quality during distribution

Activity	Metrics/ Criteria	Relative Continuum, for discussion purposes				
		1	2	3	4	5
	Logistics Management Information System	System to aggregate, analyze, validate, and display data (from all levels of the logistics system) that can be used to make logistics decisions and manage the supply chain not institutionalized or followed No facility level records or not maintained. Low reporting rates. No visibility into CHW supplies. No visibility by central level on facilities and none by facility level on central level.	Stand-alone, program specific LMIS processes and structures defined but no formal or ongoing monitoring or measurement protocol exists. Some visibility of facility level inventory and consumption, low reporting rates, mostly paper-based	The country has documented LMIS processes and structures. The structures are functional. Metrics for performance monitoring, quality improvement, and evaluation are systematically used. Migration of data collection and reporting from a paper system to an electronic system at the district level and above. A documented mechanism is in place for maintaining data quality throughout the data supply chain.	Government and stakeholders use the national LMIS systems for key performance monitoring and follow standard practices. Facility inventory and consumption data is digital at facility level, upstream data available to facilities, System alerts for low stock/expiry, use of master product list and master facility list Interoperability with other information systems (e.g., warehouse management, medical records, laboratory management, enterprise resource planning systems, and health information management systems)	Near real time visibility into inventory and consumption data at all levels, data from multiple systems feed into common platform/control tower (automated process), predictive analytics. The government and stakeholders routinely review interoperability activities and modify them to adapt to changing conditions. Compliance with standards for data exchange, messaging, and security is regularly reviewed. The regulatory framework is reviewed and updated to reflect best practices for data exchange, messaging, and systems security.

Activity	Metrics/ Criteria	Relative Continuum, for discussion purposes				
		1	2	3	4	5
	Regulatory, Policy and Governance	Legal basis to enable a medicines (and related health commodities - e.g., devices, vaccines, etc.) regulatory agency to function is absent or inappropriate Formal organizational structure regarding in-country stakeholders and relevant agencies to whom authority is delegated, is absent or inadequate (e.g., up-to-date organogram of MOH). Human and financial capacity to enable regulatory functionality, weak or absent No approved supply chain strategic plan	Medicines framework exists and is sufficient to support basic regulatory functions including clinical dossier review (licensing) and marketing authorization with registration. Documented domestic financial support to enable regulatory activities - including human resources Approved supply chain strategic plan but not updated recently. Poorly implemented strategic plan	All SDP levels have in place policies that address STG, quality assurance and HR. Management policies for the supply chain system are in place at the MOH level. Policy and strategic leadership is not always translated into robust implementation plans, and supportive supervision, capacity building and guidance to managers within the system. No consistent approach to pharmacovigilance or a standard reporting structure for pharmacovigilance events Overall quality management system in place to support interface of product licensing, registration, manufacturing, post-marketing	Strong policy and strategic leadership by government, with firm grasp of budgets and financial sustainability Robust implementation plans, and supportive supervision, capacity building and guidance to managers within the system. Regulatory and policy bodies in alignment to support quality product availability National and standardized Pharmacovigilance or a standard reporting structure for pharmacovigilance events in place, not fully functional. Approved (and up to date) supply chain strategic plan (contains clear roles and responsibilities, stakeholder mapping, costs).	The MOH leads strategic functions such as, policy formulation, quality assurance and overseeing the funds required for policy implementation. Ability to ensure product quality, automated drug registration process, clear/transparent importation process, robust post-market surveillance system and, track and trace regulations developed and/or in the process of implementation. Approved (and up to date) supply chain strategic plan (contains clear roles and responsibilities, stakeholder mapping, costs). Includes risk mitigation plan.

Activity	Metrics/ Criteria	Relative Continuum, for discussion purposes				
		1	2	3	4	5
				surveillance. Approved (and up to date) supply chain strategic plan. Partially implemented		

Figure B5. Category: Strategic Information

Activity	Metrics/ Criteria	Relative Continuum, for discussion purposes				
		1	2	3	4	5
Data, Surveillance, Monitoring & Evaluation	Overall HMIS reporting rate (CY 2018)	<60%	60-69%	70-79%	80-89%	90%+
	Element specific reporting rate: "Confirmed malaria cases among children under 5" (CY 2018)	<60%	60-69%	70-79%	80-89%	90%+
	HMIS data quality assurance and quality control	Few standards exist for data collection, assembly, & analysis. Data quality reviews and audits are ad hoc for specific data needs. No data-quality assurance plan and national coordinating body exist.	Standards used for data collection, assembly & analysis in limited settings. Some electronic tools used for data quality review and audit. Data-quality assurance plan is available.	Standards defined and implemented for data collection, assembly, analysis, and used nationally. Data quality reviews and audits scheduled and include a remediation process to address identified issues. SM&E staff are seconded to NMCP	Data reviews and audits are integrated in strategic plans, conducted on a regular schedule. Regular meetings held by national data-quality governing body; issues identified are addressed through an established remediation process.	Continuous review and auditing through automated and manual processes, to ensure defined levels of data quality. Data quality metrics are used for continuous improvement. The data-quality assurance plan is reviewed periodically by a national coordinating body and appropriate stakeholders.

Activity	Metrics/ Criteria	Relative Continuum, for discussion purposes				
		1	2	3	4	5
	Reporting Systems	Data collection tools are not standard and procedures are not consistently followed; data are collected and stored in an unstructured format. NMCP does not have access to malaria data from HMIS.	Data systems support longitudinal health data (clinical, surveillance, M&E) in limited settings. The data are available for centrally mandated reporting. A parallel malaria reporting system may exist.	Most data platforms/applications ensure data availability at all levels for decision support and M&E for authorized users. No parallel malaria reporting system exists. NMCP has access to malaria data from HMIS.	The data systems in use ensure reliable and appropriate access to data at all levels for authorized users. Changes in reporting requirements are accommodated with minimal disruption to data availability. Data systems support secondary use of data and NMCP has access.	Data availability is monitored for continuous improvements and to meet emerging health sector needs. Reporting is available from private facilities and community-level providers and can be disaggregated.
	Data collection	Data collection is not done at the most peripheral level (CHWs) and is irregular and inaccurate at rural and more central health facilities. System is entirely paper based, but registers may be absent	Data collection is well managed at HF level, but incomplete at community level (CHWs); most collection is paper based and aggregation is paper based; registers generally available; timeliness and completeness remain challenges	Data collection is well managed at HF level and at community level (CHWs); most collection is paper based, aggregation is electronic; registers available; timeliness and completeness >80%, feedback to collectors limited	Data collection at all levels); collection is electronic and sometimes paper based, aggregation is electronic; registers include all program-critical data; timeliness and completeness >80%, feedback to collectors is standardized	Data collection occurs at all levels, is transmitted in real time with timely feedback to those collecting and those using the data; data checks exist at point of collection; electronic transmission is the norm, including to data collectors
	Data use	Activities (analysis, interpretation, visualization) to ensure data use are rarely implemented	Limited data use activities are implemented (bulletin has been developed but analysis and interpretation for decision- making needs to be strengthened)	Country conducts regular data use activities (review meetings, bulletin at least quarterly, at least at the central level).	Country conducts regular data use activities at all levels (review meetings, bulletins, dashboard at least quarterly).	Country has developed their own high- quality dashboard to facilitate data use, and data-informed decision making is evident at all levels, on a frequent basis.

Activity	Metrics/ Criteria	Relative Continuum, for discussion purposes				
		1	2	3	4	5
OR/PE	PMI in-country OR experience	No previous PMI OR experience in country	PMI team has prepared concept notes (CNs) but has not completed protocols or conducted OR	PMI team has completed protocols and received approval for OR; studies in planning, underway, or recently completed	PMI team and/or other country partners have completed a OR study and prepared and shared reports	Multiple OR studies completed in country that address malaria program implementation bottlenecks with publication and sharing of results, with involvement from MOH co-investigators
	Country mechanisms for OR/PE review	No in-country process for research review, determination, or IRB processes	Limited in-country processes for research review, determination, and IRB oversight	Processes in place for research and IRB review with federal-wide assurance approval; no previous PMI in-country OR experience	Processes in place for research and IRB review with federal-wide assurance approval; previous PMI in-country OR experience	Full complement of research review, approval, oversight processes including data safety and monitoring boards and systems for results sharing
	In-country partnerships for OR	No in-country partners (academic, NGO, or other) with OR experience	1-2 in-country partners with OR experience, but no malaria specific experience	3+ in-country partners with OR experience; 1+ with some malaria expertise; no current PMI-linked OR work	3+ in-country partners with OR experience; 1+ with malaria expertise; current or recent work with PMI OR	Multiple in-country partners with specific malaria experience in PMI OR, including completed past work and reporting on malaria OR
	Conceptualization of problems needing scientific evaluation	No experience	Some but limited experience in identifying programmatic problems and prioritization	Experience with identifying program problems and prioritizing PE and OR	Experience with identifying problems needing PE or OR and developing study approaches with partners	Extensive experience with problem identification, prioritization, proposal development and conducting PE or OR

Figure B6. Category: Support Systems

Activity	Metrics/ Criteria	Relative Continuum, for discussion purposes				
		1	2	3	4	5
SBC	National Malaria SBCC Strategy used to guide design and implementation of malaria SBC activities	No strategy exists.	Strategy exists but there is no evidence that it has been used to guide design or implementation.	Strategy exists and is used from time-to-time to guide design and implementation, but is of poor quality and does not include any of the key elements identified in the RBM SBCC Working Group National Malaria SBCC Strategy Template.	Strategy is used from time-to-time to guide design and implementation, but lacks alignment with the broader National Malaria Strategy and only incorporates a couple of the key elements identified in the RBM SBCC Working Group National Malaria SBCC Strategy Template.	Strategy is well aligned with the broader National Malaria Strategy, includes the key elements identified in the RBM SBCC Working Group National Malaria SBCC Strategy Template, and is used to guide design and implementation.
	SBC Technical Working Group coordinates effectively	No technical working group exists.	The SBC Technical Working Group exists on paper, but has not been operationalized.	The SBC Technical Working Group has significant resource and staffing gaps and does not have clear pathways for coordination.	The SBC Technical Working Group lacks some needed resources/staff and generally only coordinates at the national level only.	The SBC Technical Working Group is well resourced and staffed and engages in regular coordination at both the national and sub-national level.
	High-quality formative assessments used to inform intervention design	No high-quality, formative assessment conducted in the last five years.	Formative assessment conducted, but significant quality issues in the design and no evidence that data was used to inform intervention design.	High-quality, formative assessment conducted, but no evidence that data was used to inform intervention design.	Data from prior projects used exclusively to guide intervention design; no new data collected.	High-quality, formative assessment conducted and data used to inform intervention design.
Elim (relevant only for countries actively	Elimination planning to implementation	No elimination or pre-elimination targets in the national strategic plan	Risk stratification conducted using latest incidence data and interventions targeted	Readiness assessment/ capacity inventory conducted	Capacity built and systems in place to initiate elimination activities	Elimination activities implemented fully in targeted areas

Activity	Metrics/ Criteria	Relative Continuum, for discussion purposes				
		1	2	3	4	5
pursuing elimination	Surveillance system readiness to track all cases	Monthly, aggregate data from public sector only	At least monthly, aggregate data from public, private, and community levels	Case-based reporting initiated	Real-time, case-based surveillance inclusive of all sectors and levels in targeted areas	Real-time, case-based reporting and response activities implemented
Additional Health Systems Strengthening	Staffing	No staff	Manager and a few technical staff; not all intervention areas are covered	Manager and technical staff for each intervention area; many staff have limited training and experience ; limited program support staff	Full staffing of program areas and support systems but some staff need further training to optimize their effectiveness; limited plans and opportunities for such training	Fully staffed with personnel with relevant training and experience; complete plan for professional development
	Office space, transport	No office space or transport	Office space exists but is insufficient for staff; Transport available at intervals but limited for program needs	Office space adequate for current staff but no growth possible; office not well positioned for access to MOH leadership. Transport available but not covering all needs and not well managed/maintained	Office space adequate for current staff and some technical areas (e.g., lab) but not fully adequate for growth and all technical services. Transport covers most needs.	Office space is fully adequate for current staff and technical needs (lab, insectary, meeting space, etc.) and some growth and well positioned in the MOH; Transport is fully available for needed purposes -- trucks and 4-wheel drive vehicles where needed - all maintained and managed..
	Internet connectivity	No Internet connectivity	Intermittent connectivity; poor bandwidth; challenging maintenance; very little budget	Mostly connected with some outages; ok but not ideal bandwidth; irregular maintenance; modest budget	Generally stable connections, adequate bandwidth for most work, fair to good maintenance and sufficient budget	Fully connected, maintained, good bandwidth for all needs, and sufficient budget including all needed hardware and software

Activity	Metrics/ Criteria	Relative Continuum, for discussion purposes				
		1	2	3	4	5
	NMCP placement within Ministry of Health	NMCP exists but is barely visible in the MOH structure	NMCP is visible in the MOH structure but NMCP manager reports to supervisor who is still low in the MOH system	NMCP is visible and manager reports to high level leader in MOH (e.g., Director of Public Health or Permanent Secretary for Health)	NMCP (or NMEP) is highly visible and reports at a high level in MOH and has some access to other ministry leadership (e.g., education, agriculture, community development)	NMCP (or NMEP) is highly visible within MOH and with all other relevant ministries and has ready access to country leadership (e.g., the president/prime minister; and parliament)