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Democratic Republic of Congo (DRC)

Malaria Operational Plan FY 2022

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This FY 2022 Malaria Operational Plan has been approved by the U.S. Global Malaria Coordinator and reflects collaborative discussions with national malaria control programs and other partners. Funding available to support outlined plans relies on the final FY 2022 appropriation from U.S. Congress. Any updates will be reflected in revised postings.

This document was prepared in the early months of 2021 as the COVID-19 pandemic continued to evolve worldwide, including in PMI-focus countries. The effects of the pandemic on malaria control and elimination work in 2022 are difficult to predict. However, because U.S. Congressional appropriations for PMI are specific to work against malaria and any appropriations for work against the COVID-19 are specific for that purpose and planned through separate future U.S. Government planning processes, this FY 2022 MOP will not specifically address the malaria-COVID-19 interface and will reassess any complementary work through timely reprogramming in countries.

CONTENTS

ABBREVIATIONS

ACT	Artemisinin-based combination therapy
AL	Artemether-lumefantrine
AMF	Against Malaria Foundation
ANC	Antenatal care
ASAQ	Artesunate-amodiaquine
BMGF	Bill & Melinda Gates Foundation
CDC	U.S. Centers for Disease Control and Prevention
CDR	*Centrale de Distribution Regionale*
CHW	Community health worker
CQI	Continuous quality improvement
CY	Calendar year
DHIS2	District Health Information Software 2
DHS	Demographic and Health Survey
DRC	Democratic Republic of Congo
DSNIS	*Division du Système National d'Information Sanitaire*
EPI	Expanded Program on Immunization
EUV	End-Use Verification
FY	Fiscal year
Global Fund	Global Fund to Fight AIDS, Tuberculosis, and Malaria
HMIS	Health management information system
HNQIS	Health Network Quality Improvement System
iCCM	integrated community case management
Inj. AS	Injectable artesunate
IPTi	Intermittent Preventive Treatment of Infants
IPTp	Intermittent preventive treatment for pregnant women
IRS	Indoor residual spraying
ITN	Insecticide-treated mosquito net
LMIS	Logistics Management Information System
M&E	Monitoring and evaluation
MBS	Malaria Behavioral Survey
MICS	Multiple Indicator Cluster Survey
MIP	Malaria in pregnancy
MIS	Malaria indicator survey
MOH	Ministry of Health
MOP	Malaria Operational Plan
NMCP	National Malaria Control Program
OR	Operational research
OTSS	Outreach training and supportive Supervision
PBO	Piperonyl butoxide
PE	Program evaluation
PMI	U.S. President's Malaria Initiative

PNAM	*Programme National d'Approvisionnement en Médicaments*
PNDS	*Plan National de Development Sanitaire* (National Health Development Plan)
RDT	Rapid diagnostic test
RDQA	Routine data quality assessment
SBC	Social and behavior change
SM&E	Surveillance, monitoring, and evaluation
SMC	Seasonal malaria chemoprevention
SP	Sulfadoxine-pyrimethamine
SPA	Service Provision Assessment
TA	Technical assistance
TES	Therapeutic efficacy study
TIPTOP	Transforming Intermittent Preventive Treatment for Optimal Pregnancy
TWG	Technical working group
UNICEF	United Nations Children's Fund
USAID	United States Agency for International Development
WHO	World Health Organization

EXECUTIVE SUMMARY

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 DRC since 2010, helping to decrease child death rates by 56 percent and increase population access to an ITN by 14 percentage points[1] through investments totaling almost $488 million.[2]

The proposed PMI fiscal year (FY) 2022 budget for DRC is $48 million. This Malaria Operational Plan (MOP) outlines planned PMI activities in DRC using FY 2022 funds. Developed in consultation with the national malaria control program (NMCP) and key malaria 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. Based on donor rationalization, PMI supports malaria activities in nine provinces while the Global Fund supports the other 17 provinces in DRC.

Malaria continues to be the leading cause of morbidity and mortality in DRC.[3] Approximately 97 percent of the population lives in zones with stable malaria transmission lasting 8 to 12 months per year, and all of the population is at risk for malaria. 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. In 2019, the incidence was 206 malaria cases per 1,000 population.[4] Over the last several years, the number of malaria cases in DRC has steadily increased from about 15 million in 2016 to almost 26 million in 2020. However, during that same time period, substantial progress was made in reducing mortality from malaria. Malaria deaths decreased from about 34,000 in 2016 to less than 14,000 in 2019. In 2020, this trend in mortality reduction was reversed, with almost 25,000 malaria deaths recorded.[5]

PMI will support investments in the following intervention areas with FY 2022 funds:

- **Vector Control.** With FY 2019 funding, PMI/DRC supported entomological surveillance and insecticide resistance monitoring in 13 sites, entomological training, and a study to monitor the effectiveness of PBO (piperonyl butoxide) insecticide-treated mosquito nets (ITNs) distributed in Sud Ubangi. PMI also procured and distributed more than 1.3 million ITNs through antenatal care (ANC) and child vaccination clinics, including ITNs procured by the Global Fund. PMI/DRC is proposing with FY 2022 funding to maintain similar entomological monitoring activities in select sites, although longitudinal monitoring will start monitoring human behavior in addition to vector behavior. ITN activities will follow the same strategies as previous year funding. Although PMI/DRC continues to collect data showing that next-generation nets are needed, the PMI/DRC budget envelope only permits the procurement of standard

[1] DRC Multiple Indicator Cluster Survey (MICS) 2017–2018.
[2] PMI FY 2020 Annual Report to Congress.
[3] National Strategic Plan for Malaria Control 2020–2023.
[4] NMCP Annual Report 2019.
[5] District Health Information Software 2 (DHIS2).

ITNs. However, PMI is providing the key monitoring and operational research that is being used by other donors and the NMCP in net procurement decisions.

- Human Health. Recent progress includes training more than 2,000 health service providers in malaria case management, refresher training for almost 800 community health workers (CHWs), integrated community case management (iCCM) monthly supervisions, and supporting the Ministry of Health (MOH) to train more than 100 lab technicians in malaria microscopy. With FY 2019 funding, PMI/DRC procured and distributed 6.5 million rapid diagnostic tests (RDTs), 6.8 million artemisinin-based combination therapy treatments (ACTs), 1 million vials of injectable artesunate for reference hospitals, and 15,730 rectal artesunate suppositories for health centers and community care sites. For drug-based prevention, with FY 2019 funds PMI/DRC supported the NMCP to train more than 2,300 health service providers in Malaria in Pregnancy (MIP). PMI procured and distributed almost 1.3 million sulfadoxine-pyrimethamine (SP) treatments and provided intermittent preventive treatment for pregnant women (IPTp) kits (cups, water bottles) to 280 facilities to ensure directly observed administration of IPTp per national policy. The proposed investments with FY 2022 funding do not differ substantially from previous years. However, PMI/DRC plans to scale up continuous quality improvement approaches to improve provider service delivery and community IPTp based upon findings from pilot implementation including a new continuous quality improvement project in Haut Katanga and an ongoing community IPTp pilot study. PMI will also support efforts to revise and launch a pre-service malaria training curriculum targeted to medical training institutions.
- Supply Chain. Based on chronic malarial product shortages and stockouts, and delayed deliveries in 2020 due to the COVID-19 pandemic, PMI/DRC ordered approximately six months of buffer stock of SP, RDTs, and ACTs to prevent future stockouts of these products. In late 2020, PMI/DRC supported a national quantification exercise under the leadership of the national medicines procurement program (PNAM). PMI/DRC also conducted an end-user verification (EUV) survey in collaboration with the Global Fund, and supported the InfoMed logistics management information system (LMIS) rollout and training. With FY 2022 funding, PMI/DRC will continue to support supply chain management system strengthening as in previous years. The limited infrastructure and cost of transportation in DRC means that a major part of the PMI/DRC annual budget is committed to these logistics costs.
- Surveillance, Monitoring, and Evaluation (SM&E) and Operations Research (OR). Key recent results in SM&E and OR include strengthening the NMCP monitoring and evaluation (M&E) capacity through technical working groups (TWGs), data review and analysis, and data validation meetings. With FY 2019 funding PMI/DRC supported joint supportive supervision visits to review data quality, routine data quality assessments (RDQAs) in 99 health facilities, and supported 160 health zones with their monthly data monitoring meetings. Additionally, PMI/DRC finalized a protocol for an operations research study using automated RDT readers to determine the degree of discordance in test positivity rate between the automated readers and the national health management information system (HMIS). With FY 2022 funding, PMI/DRC will continue supporting a broad range of SM&E investments both at the central NMCP level and in the nine PMI provinces. No operations research or program evaluation is being proposed for FY 2022.
- Social and Behavior Change (SBC). Recent progress in PMI-supported SBC includes planning and preparation for three formative research activities that will provide insights on determinants of key community behaviors (Malaria Behavior Survey [MBS] co-financed with the Global Fund), as well as provider behaviors for IPTp administration and case management and reporting behaviors. With FY 2019 funding, PMI also supported SBC implementation based on a comprehensive human-centered design

(HCD) approach. Activities have reached over 375,000 people using a variety of channels including a mobile phone platform, a Facebook campaign, listening clubs (where essential malaria behaviors, norms, and attitudes are discussed), and other community engagement prototypes developed during the HCD process. Capacity-building focused on technical assistance (TA) to the NMCP in developing the new National Malaria Communication Plan and establishing the Malaria Communication Task Force. PMI/DRC will continue supporting similar SBC activities with FY 2022 funding but will shift focus from formative data collection and SBC design to expand implementation through community-based activities as well as media channels. Part of this implementation approach will be an increased focus on working with faith-based and community-based organizations, particularly for promotion of ANC attendance and IPTp uptake. PMI will also continue to support efforts to expand an SBC training curriculum to medical training institutions beyond the University of Kinshasa.

- **Other HSS.** With FY 2019 funding, PMI/DRC supported task force and malaria TWG meetings at national and provincial levels; malariology training in selected provinces; started to support the NMCP to improve its organizational, management, and leadership capacity; reintegrated malaria provincial SM&E advisors in the nine PMI-supported provinces; and supported the NMCP to develop the 2020–2023 national malaria strategic plan to align with the country's Health and Social Development Plan (*Plan National de Development Sanitaire* [PNDS]). FY 2022 funding will follow similar investments to previous years.

Through these recent achievements and proposed activities for FY 2022, the PMI/DRC team is continuing to support the overall objective of DRC's National Strategic Plan to Control Malaria 2020–2023, which is to reduce malaria related morbidity by 40 percent and malaria related mortality by 50 percent from 2018 levels. All planned PMI/DRC engagement supports NMCP priorities and works in collaboration with the Government of DRC as well as other donors and partners.

1. 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 DRC to end malaria. PMI has been a proud partner of DRC since 2010, helping to decrease child death rates by 56 percent and increasing population access to an ITN by 14 percentage points[6] through investments totaling almost $488 million.[7]

The proposed PMI fiscal year (FY) 2022 budget for DRC is $48 million. This Malaria Operational Plan (MOP) outlines planned PMI activities in DRC using FY 2022 funds. Developed in consultation with the national malaria control program (NMCP) and key malaria 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 and Malaria Transmission Seasonality: 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 2020: The DRC population is about 112,885,614, with PMI covering 37% of the population (41,873,075) in nine out of 26 provinces (DHIS2 data for 2020).

Population at Risk of Malaria: 100% of the DRC population is at risk of malaria (DRC National Strategic Plan 2020–2023).

Principal Malaria Parasites: The principal malaria parasite is *Plasmodium falciparum*, followed by *Plasmodium malariae* and *Plasmodium ovale. Plasmodium vivax* has also been found in DRC. (DRC National Strategic Plan 2020–2023).

Principal Malaria Vectors: *Anopheles gambiae s.i.*, *Anopheles funestus*, and *Anopheles paludis* are the main malaria vectors in DRC (DRC National Strategic Plan 2020–2023).

Malaria Case Incidence per 1000 Population: The incidence was 206 cases per 1,000 population in 2019 (NMCP Annual Report 2019).

Under-Five Mortality Rate: The under-five mortality rate is 70/1,000 (DRC MICS 2017–2018).

World Bank Income Classification and GDP: DRC is classified by the World Bank as a low income economy. The 2019 GDP was $580 per capita (GDP per capita (current US$) - Congo, Dem. Rep. | Data (worldbank.org)).

Government Health Budget: The government health budget was $1,427,241 for malaria in 2019 (NMCP Annual Report 2019).

[6] DRC MICS 2017–2018.

[7] PMI FY 2020 Annual Report to Congress.

Trafficking in Persons Designations, 2018–2020: 2018–2019: Tier 3, 2020: Tier 2 watchlist (United States Department of State Trafficking in Persons Report, June 2020).

Malaria Funding and Program Support Partners Include:

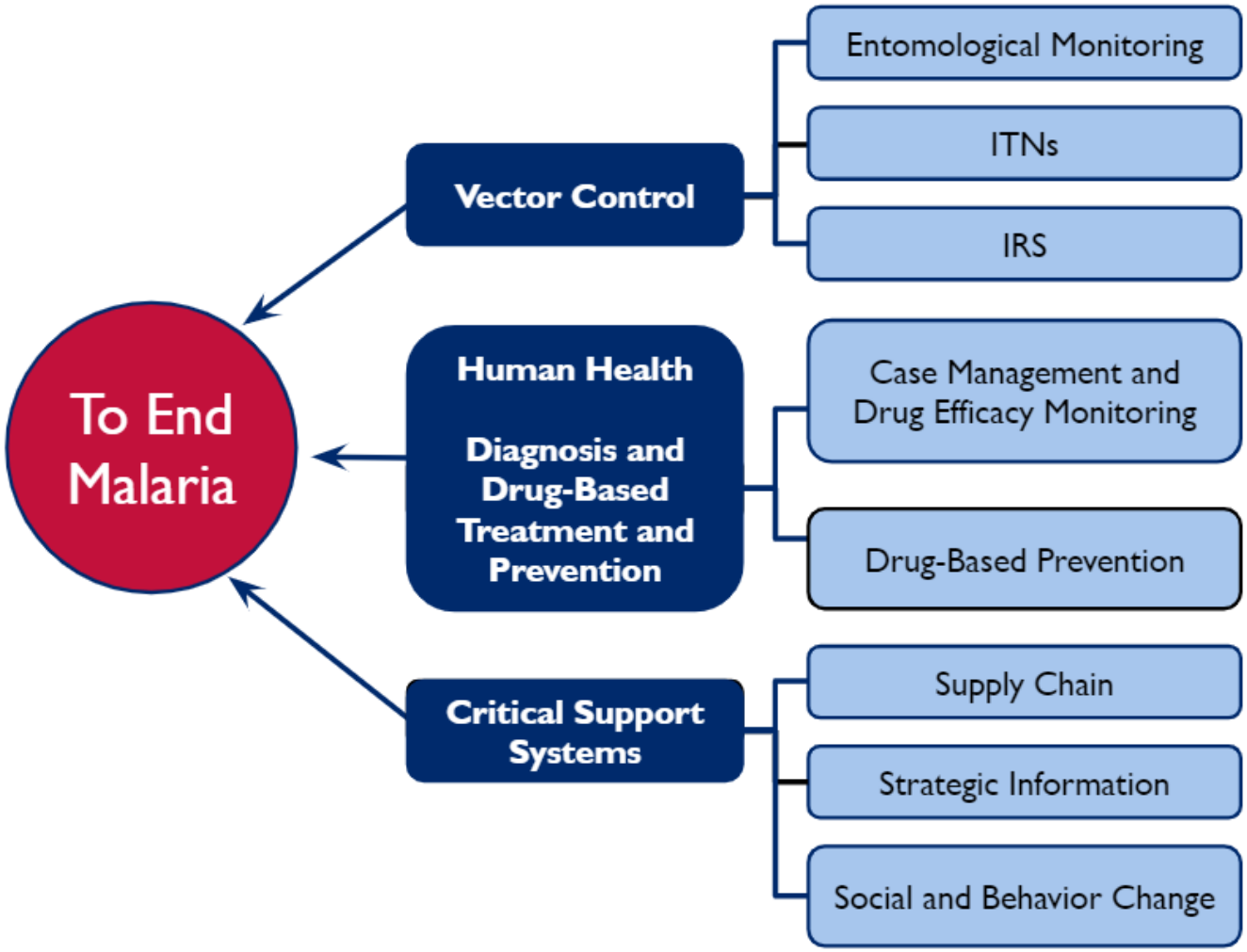
- U.S. President's Malaria Initiative (PMI)
- Global Fund to Fight AIDS, Tuberculosis and Malaria (Global Fund)
- World Health Organization (WHO)
- Against Malaria Foundation (AMF)

PMI Support of National Malaria Control Strategy: PMI supports the DRC to achieve the objectives set in its National Strategic Plan for Malaria Control 2020–2023. PMI supports entomological monitoring and insecticide resistance monitoring to inform the NMCP vector control strategy. PMI supports routine bed net distribution through antenatal care (ANC) and child immunization (EPI) services and mass distribution campaigns in targeted provinces to maintain high levels of bed net ownership and use. PMI also supports school-based bed net 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, and injectable and rectal artesunate. 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 2022 PMI budget for DRC is $48 million; this will bring the total PMI investment to nearly $584 million.

PMI organizes its investments around the activities below, in line with the DRC national malaria strategy 2020–2023.

Figure 1. PMI's approach to end malaria[8]



Building and strengthening the capacity of DRC's people and institutions—from the central level to communities—to effectively lead and implement evidence-based malaria control and elimination activities is paramount to PMI. The majority of PMI's planned support for FY 2022, across the areas of vector control, human health, and critical support systems such as supply chain, 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 and the Kinshasa School of Public Health and is expanding its local partner base to reach the Bureau d'Etude et de Gestion de l'Information Statistique, which will be conducting the PMI and Global Fund supported Malaria Behavior Survey in DRC in 2021. Finally, PMI/DRC will continue to rely on private sector

[8]A number of actions are cross-cutting in nature. For example, social and behavioral change (SBC) is embedded in all vector control and human health work; program evaluation (PE) and operational research (OR) are relevant in all of the fieldwork; finance and management support and the introduction of new tools/interventions are critical for all programs; and elimination requires work across the full spectrum of transmission.

partnerships such as our collaboration with AMF on ITN distributions. Additionally, future private sector partnerships will be informed by recommendations from the current private sector engagement activity in DRC.

In addition, while PMI understands it will take time for DRC to fully finance its development priorities, PMI will work with other partners (e.g., the Global Fund) to jointly track DRC's funding commitments across the malaria portfolio.

II. MALARIA SITUATION AND PROGRESS

DRC accounts for an estimated 12 percent of all malaria cases and 11 percent of all malaria deaths globally.[9] Malaria continues to be the leading cause of morbidity and mortality in DRC,[10] with more than 25 million malaria cases and almost 25,000 malaria deaths reported in 2020.[11] 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 2017–2018 Multiple Indicator Cluster Survey (MICS) showed malaria parasite prevalence in children 6 to 59 months of age to be 39 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 bed net ownership since the last DHS, the under-five mortality rate has improved, as well as IPTp coverage and the proportion of children receiving an ACT among those treated with an antimalarial (Table 1). Malaria cases have increased over the past several years in DRC, and although there were declines in malaria deaths between 2016 and 2019, malaria deaths showed an increase in 2020 from 2019 levels (Table 2).

[9] WHO World Malaria Report 2020: World malaria report 2020: 20 years of global progress and challenges (who.int)

[10] Source: National Strategic Plan for Malaria Control 2020–2023.

[11] Source: DHIS2.

Figure 2. Trends in malaria prevalence

Children 6 to 59 months of age who tested positive for malaria by microscopy and RDT [DHS 2013–2014 and MICS 2017–2018]

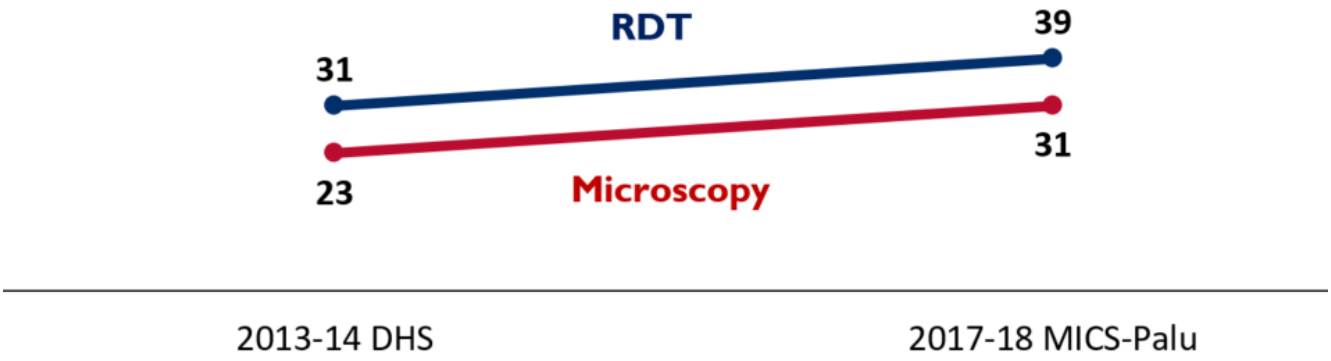


Figure 3. Malaria prevalence by geographic area

Children 6 to 59 months of age who tested positive for malaria by microscopy [MICS 2017–2018]

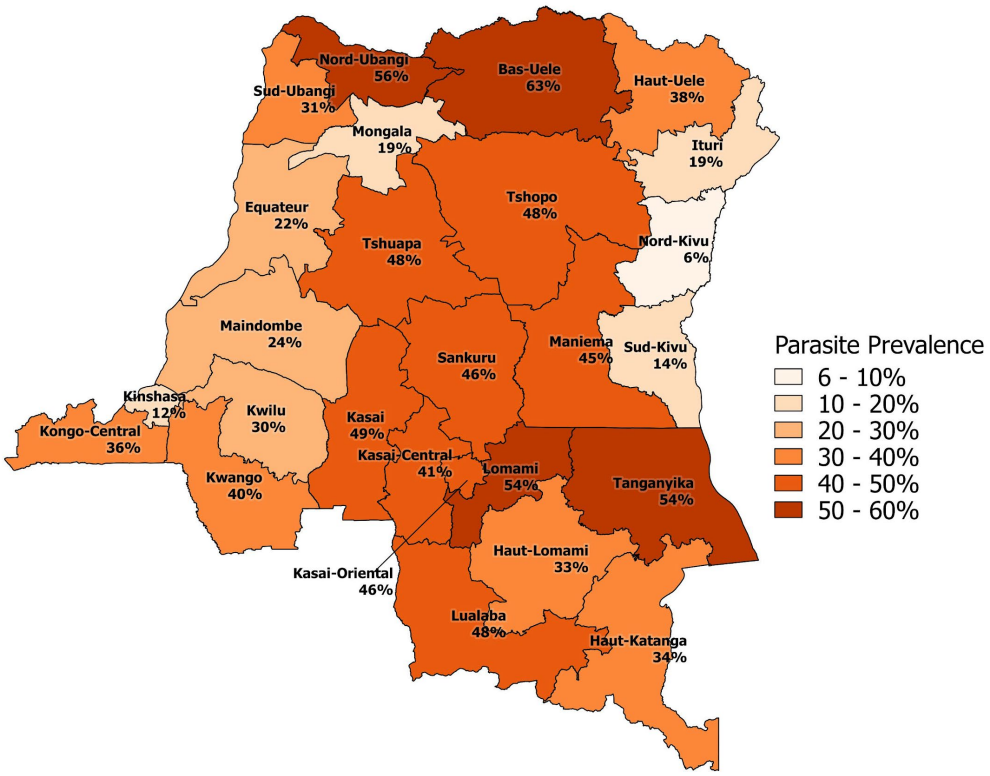


Table 1. Key indicators from demographic health surveys (DHS) and multiple indicator cluster surveys (MICS)

Indicator	2010, MICS	2013–2014, DHS	2017–2018, 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	48
% Children under five years of age 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 of age with a fever in the last two weeks for whom advice or treatment was sought	60*	55	46
% Children under five years of age with a fever in the last two weeks who had a finger or heel stick	17	19	22
% Children receiving an ACT among children under five years of age with a fever in the last two weeks who received any antimalarial drug	2	17	42
% Women who received two or more doses of IPTp during their last pregnancy in the last two years	21	15	31
% Women who received three or more doses of IPTp during their last pregnancy in the last two years	N/A	6	13
Under-five mortality rate per 1,000 live births	158	104	70
% Children under five years of age with parasitemia by microscopy	N/A	23	31
% Children under five years of age with parasitemia by RDT	N/A	31	39
% Children under five years of age with severe anemia (Hb<8gm/dl)	11	6	7

*2007 DHS.

Table 2. Evolution of key malaria indicators reported through routine surveillance systems

Indicator	2016	2017	2018	2019	2020
# Suspect malaria cases[1]	21,569,754	21,959,428	27,359,710	32,091,878	33,014,034
# Patients receiving diagnostic test for malaria[2]	21,440,703	18,994,861	22,434,962	29,162,956	30,159,784
Total # malaria cases[3]	15,397,717	15,368,607	18,208,440	25,413,471	25,953,957
# Confirmed cases[4]	15,330,841	15,272,767	16,930,517	21,966,095	22,613,778
# Presumed cases[5]	66,876	95,840	1,277,923	3,447,376	3,340,179
% Malaria cases confirmed[6]	99.6%	99.4%	93.0%	86.4%	87.1%
Test positivity rate (TPR)[7]	RDT: 72% Microscopy: 66%	RDT: 73% Microscopy: 65%	RDT: 77% Microscopy: 51%	RDT: 76% Microscopy: 53%	RDT: 75% Microscopy: 59%
Total # <5 malaria cases[8]	7,292,929	6,705,608	8,370,719	12,881,319	13,069,906
% Cases in children<5[9]	47.4%	43.6%	46.0%	50.7%	50.4%
Total # severe cases[10]	1,660,226	1,486,440	1,816,040	2,061,652	2,167,640
Total # malaria deaths[11]	33,997	27,458	18,030	13,549	24,816
# Facilities reporting[12]	16,682	16,698	17,089	16,908	17,630
% Data completeness[13]	93%	95%	89%	94%	98%

1. Number of patients presenting with signs or symptoms possibly due to malaria (e.g., fever). 2. RDT or microscopy, all ages, outpatient and inpatient. 3. Total reported malaria cases; all ages, outpatient and inpatient, confirmed and unconfirmed cases. 4. Diagnostically confirmed; all ages, outpatient and inpatient. 5. Clinical/presumed/unconfirmed; all ages, outpatient and inpatient. 6. # confirmed cases divided by total # cases. 7. Confirmed cases divided by # patients receiving a diagnostic test for malaria (RDT or microscopy). 8. Outpatient and inpatient, confirmed and unconfirmed. 9. Total # <5 cases divided by total # of cases. 10. Any patient with fever or history of fever in the past two days with at least one sign of severity and/or dysfunction of at least one vital organ and with a positive Rapid Diagnostic Test or GE. 11. All ages, outpatient, inpatient, confirmed, and unconfirmed. 12. Total # of health facilities reporting data into the HMIS/DHIS2 system that year. 13. # monthly reports from health facilities divided by # health facility reports expected.

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

The Democratic Republic of the Congo (DRC) was selected as a PMI focus country in fiscal year (FY) 2010, with the start of PMI funding in FY 2011. This FY 2022 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 Strategic Plan to Control Malaria 2020–2023 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).

The overall objective of DRC's National Strategic Plan to Control Malaria 2020–2023 is to reduce malaria related morbidity by 40 percent and malaria related mortality by 50 percent from 2018 levels. Specific objectives to be achieved by 2023 are the following:

- Strengthen the package, coverage, and quality of essential malaria-related services and care in health facilities and at the community level.

- Strengthen community approaches to social and behavior change in the fight against malaria.
- Improve malaria-related skills of at least 60 percent of health workers in at least 50 percent of health facilities at all levels and motivate health workers with incentives.
- Improve the availability of quality malaria drugs, laboratory reagents, and other products.
- Improve the availability and flow of quality malaria-related health information.
- Increase funding for malaria control activities by at least 30 percent and reduce the cost of accessing care by at least 50 percent.
- Strengthen malaria control management and leadership at all levels to ensure the availability and use of quality health services.
- Strengthen multi-sectorality by involving other sectors in implementing malaria control strategies.

The 2020–2023 National Strategic Plan to Control Malaria aligns with PMI strategy and focuses on the following areas.

- **Vector control,** including distribution of long-lasting insecticide-treated nets (ITNs) 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 targeted indoor residual spraying in pilot health zones (not supported by PMI).
- **Malaria in pregnancy includes IPTp** with SP provided to pregnant women after the first trimester of pregnancy. Pregnant women are also given an ITN at their first ANC visit.
- **Case management of malaria** using confirmation diagnostic testing with rapid diagnostic tests (RDT) or microscopy and treatment with artemisinin based combination therapies (ACT): artesunate-amodiaquine (ASAQ) or artemether-lumefantrine (AL) and the introduction of artesunate-pyronaridine (AS-PYR) for uncomplicated cases and injectable artesunate as the treatment of choice 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.
- **Community dynamics and approaches for social and behavior change**, including strengthening the capacity of community health workers as key agents of behavior change, supporting the functionality of community groups, developing a strategy for social and behavior change, and promoting the use of health services.
- **Strengthening management of the malaria program** through institutional capacity-building, leadership, resource mobilization, and multisectoral collaboration.

Intermittent preventive treatment of infants (IPTi) and seasonal malaria chemoprevention (SMC) are both included in the DRC National Malaria Control Strategic Plan as interventions that will be piloted but are not currently supported by PMI.

The DRC launched the High Burden High Impact (HBHI) initiative on November 14, 2019, to align interventions with malaria burden for the ten most affected provinces (Kinshasa, Sud Kivu, Nord Kivu, Ituri, Kasaï, Tanganyika, Kasaï Oriental, Kongo Central, Haut Katanga and Kasaï Central). The National Malaria Strategic Plan to Control

Malaria 2020–2023 tries to align with the HBHI intervention micro-stratification as much as possible, although some interventions such as SMC and IPTi may only reach pilot phases over the next few years.

In 2016, the three major malaria donors in the DRC (PMI, The Global Fund, and the then-UK Department for International Development [DFID]) in collaboration with the MOH signed a malaria donor rationalization. The agreement assigned provinces to respective donors (16 for Global Fund, nine for PMI, and one for DFID). Currently, the UK's Foreign Commonwealth Development Office no longer supports malaria-specific programming, and its one province has moved to Global Fund support. In this agreement, donors take responsibility for key routine malaria interventions set forth based on the country's national malaria strategic plan in their respective provinces.

There are a few exceptions to the geographic rationalization:

- It does not apply to the provincial mass ITN campaigns and school-based ITN distributions.
- PMI supports entomological monitoring in selected sites countrywide, regardless of their location.
- In the past, PMI supported therapeutic efficacy study sites only in PMI provinces. However, PMI will support all study sites, regardless of province, beginning in 2023.

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 37 percent of DRC's total population.

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.

Figure 4. Map of target areas for PMI interventions

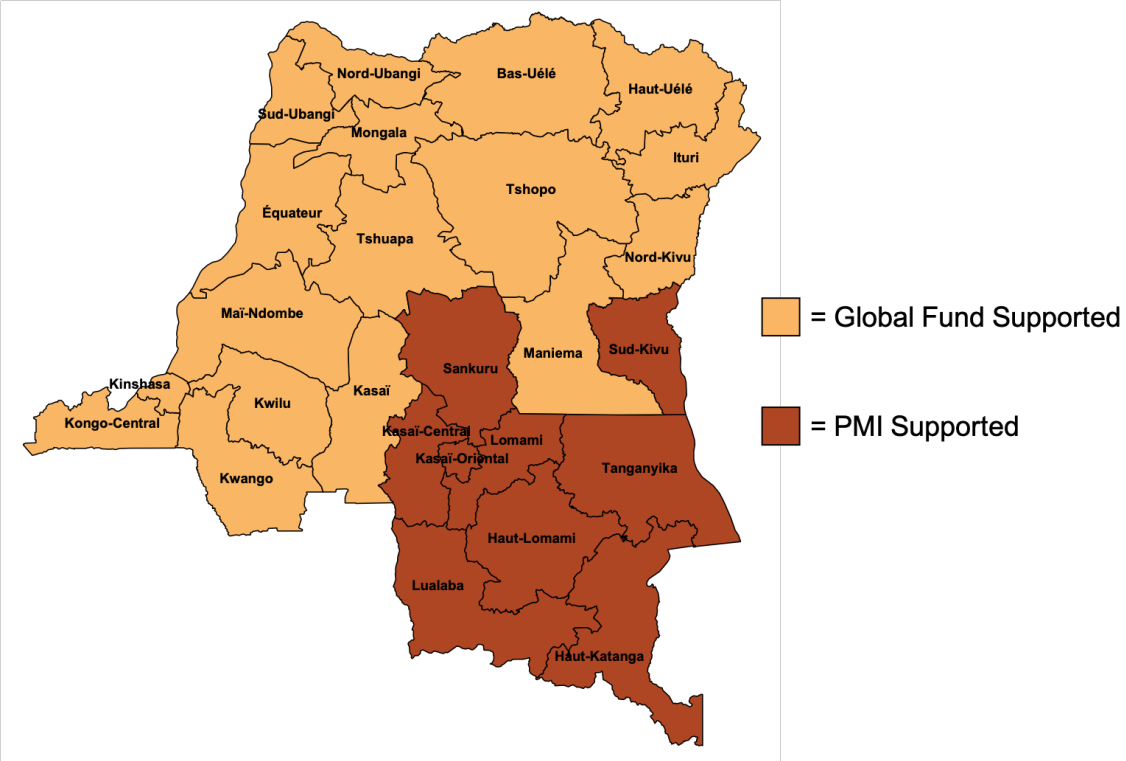
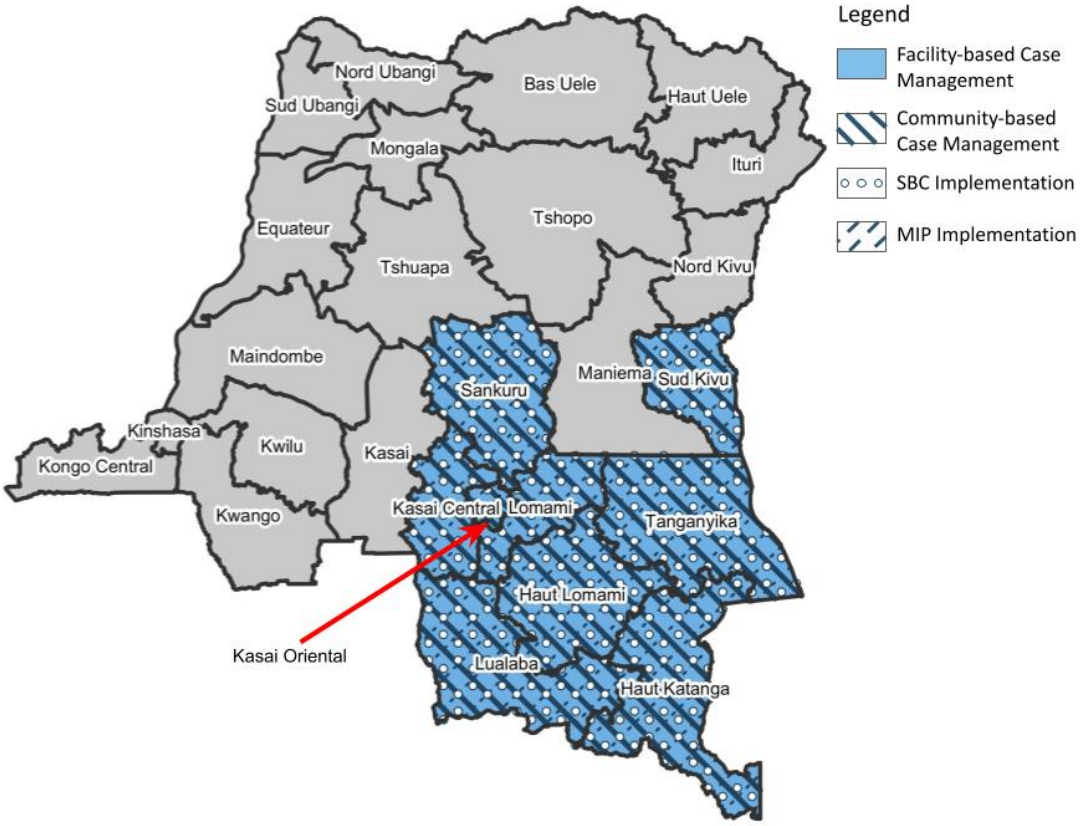
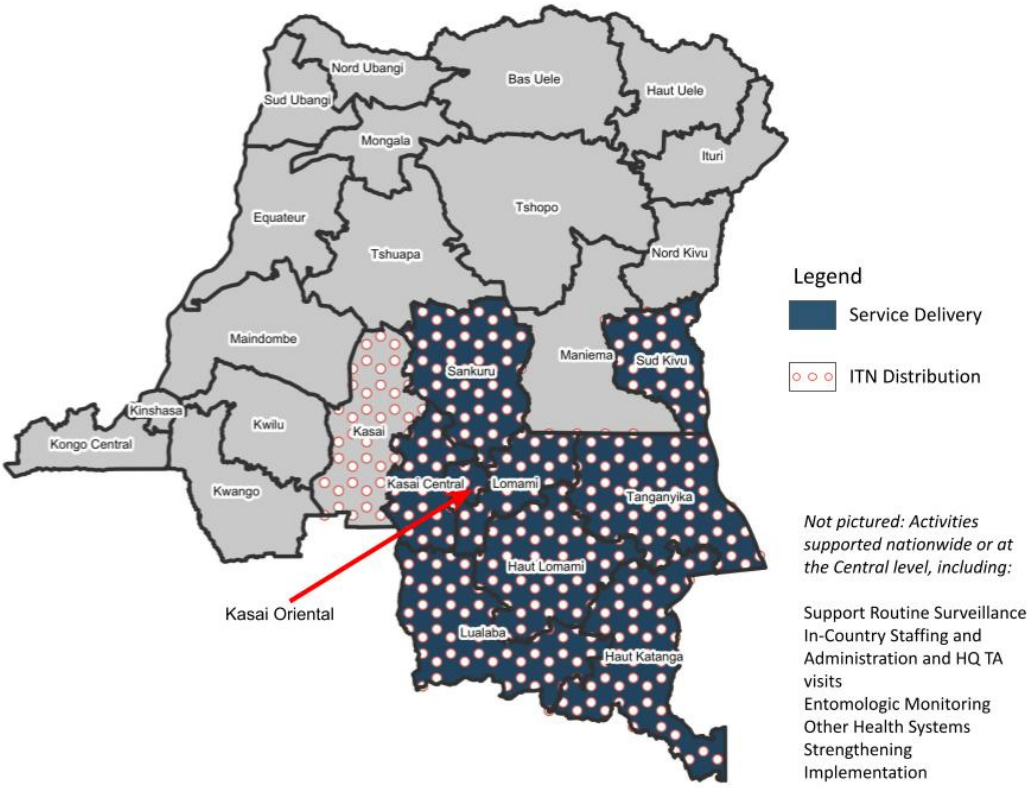


Figure 5. PMI-supported service delivery and social and behavior change activities in DRC



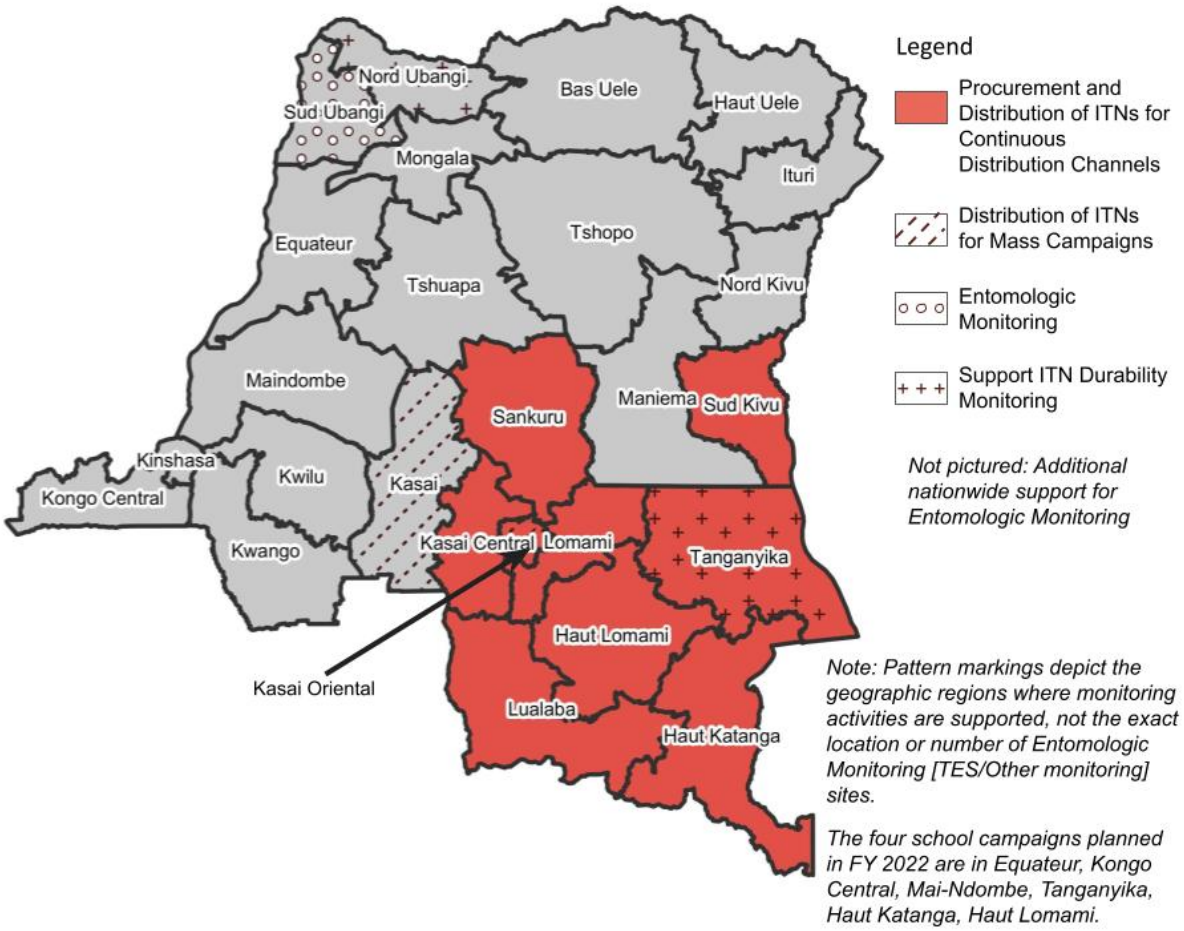
Source: DRC MOP Funding Table 2, Fiscal Year 2021 Malaria Data Integration and Visualization (M-DIVE).

Figure 6. PMI-supported activities in DRC



Source: DRC MOP Funding Table 2, Fiscal Year 2021 Malaria Data Integration and Visualization (M-DIVE).

Figure 7. PMI-supported vector control activities in DRC



Source: DRC MOP Funding Table 2, Fiscal Year 2021 Malaria Data Integration and Visualization (M-DIVE).

IV. PARTNER FUNDING LANDSCAPE

PMI emphasizes the importance of partner alignment for malaria control, recognizing that different partners bring complementary expertise and resources. In recent years, PMI, the Global Fund, and the Bill & Melinda Gates Foundation (BMGF) have harmonized financial, supply chain, and programmatic data. In particular, PMI and the Global Fund agreed to a harmonized financial taxonomy to aid comparison of our investments to better identify potential overlap or gaps.

Due to the U.S. Government fiscal year budget cycle and approximate timing of annual appropriations, PMI MOP resources fund activities that largely occur during the following fiscal year. For example, this FY 2022 MOP is anticipated to largely fund implementation of activities starting in 2023. Global Fund resources are based on the calendar year and planned for a three-year grant cycle. Most partner country governments and other partners also budget based on the calendar year.

The tables below summarize contributions by key external partners and partner country governments in calendar years 2020–2022, providing insight into total country investments. Because new grants funded through the Global Fund 2021–2023 grant cycle are just beginning, or will begin later in 2021, Global Fund country investments may still evolve the DRC. The DRC government invests substantial funding into the national-to-local infrastructure and service delivery that benefits malaria programs and many others. However, it is not always possible to attribute funding for malaria specifically from the government without a standardized method. There may be similar challenges for attributing other partner funds.

The Against Malaria Foundation (AMF) has signed an agreement with the DRC MOH for a total of 53.3 million bed nets for provincial mass campaigns between 2020 and 2022 (17.2 million bed nets for 2020, 23.2 million for 2021, and 12.9 million for 2022). AMF's commitment, which was recently extended through calendar year (CY) 2023, is critical to enable DRC to meet the ITN needs to achieve universal bed net coverage to reduce malaria transmission in the DRC.

Table 3a. Annual budget by Level 1 category for FY 2019/CY 2020

Funder	Vector Control	Case Management	Drug-Based Prevention[1]	Supply Chain[2]	Monitoring, Evaluation & Research	Cross-cutting and HSS[3]	Total Per Funder
PMI	$21.4M	$11.5M	$1.7M	$5.3M	$3.4M	$6.7M	$50.0M
Global Fund	$69.4M	$50.3M	$2.1M	$0.3M	$10.2M	$39.4M	$171.7M
AMF[4]	$34.9M						$34.9M
Total Per Category	$125.7M	$61.8M	$3.8M	$5.6M	$13.6M	$46.1M	$256.6M

Table 3b. Annual budget by Level 1 category for FY 2020/CY 2021

Funder	Vector Control	Case Management	Drug-Based Prevention[1]	Supply Chain[2]	Monitoring, Evaluation & Research	Cross-cutting and HSS[3]	Total Per Funder
PMI	$21.0M	$11.7M	$2.0M	$10.1M	$3.1M	$7.1M	$55.0M
Global Fund	$0.3M	$37.1M	$2.8M		$4.2M	$65.7M	$110.1M
AMF[4]	$48.4M						$48.4M
Total Per Category	$69.7M	$48.8M	$4.8M	$10.1M	$7.3M	$72.8M	$213.5M

Table 3c. Annual budget by Level 1 category for FY 2021/CY 2022

Funder	Vector Control	Case Management	Drug-Based Prevention[1]	Supply Chain[2]	Monitoring, Evaluation & Research	Cross-cutting and HSS[3]	Total Per Funder
PMI	$28.8M	$3.5M	$1.0M	$5.1M	$3.0M	$6.6M	$48.0M
Global Fund	$0.4M	$37.3M	$2.3M		$5.4M	$124.8M	$170.2M
AMF[4]	$29.1M						$29.1M
Total Per Category	$58.3M	$40.8M	$3.3M	$5.1M	$8.4M	$131.4M	$247.3M

1. Drug-based prevention, including SMC and MIP where applicable. 2. Covers management of in-country warehousing and distribution of malaria commodities, except for ITNs, which are separately captured under Vector Control. 3. HSS = health systems strengthening. 4. Against Malaria Foundation procures ITNs for mass campaigns only.

Table 4a. Annual budget, breakdown by commodity, FY 2019/CY 2020

Funder	ITNs *Continuous Distribution*	ITNs *Mass Distribution*	IRS[1] *Insecticide*	ACTs	RDTs	Severe Malaria	SMC-Related	IPTp-Related	Total
PMI[2]				$3.3M	$2.6M	$2.9M			$8.8M
Global Fund[3]	$10.9M	$12.0M		$10.6M	$8.6M	$10.3M		$1.9 M	$54.3M
AMF[4]		$34.4M							$34.4M
Total	$10.9M	$46.4M	$0.0M	$13.9M	$11.2M	$13.2M	$0.0M	$1.9 M	$97.5M

Table 4b. Annual budget, breakdown by commodity, FY 2020/CY 2021

Funder	ITNs *Continuous Distribution*	ITNs *Mass Distribution*	IRS[1] *Insecticide*	ACTs	RDTs	Severe Malaria	SMC-Related	IPTp-Related	Total
PMI[2]		$5.4M		$6.1M	$1.6M	$0.1M			$13.2M
Global Fund[3]				$13.8M	$3.9M			$2.2 M	$19.9M
AMF[4]		$46.4M							$46.4M
Total	$0.0M	$51.8M	$0.0M	$19.9M	$5.5M	$0.1M	$0.0M	$2.2M	$79.5M

Table 4c. Annual budget, breakdown by commodity, FY 2021/CY 2022

Funder	ITNs *Continuous Distribution*	ITNs *Mass Distribution*	IRS[1] *Insecticide*	ACTs	RDTs	Severe Malaria	SMC-Related	IPTp-Related	Total
PMI[2]	$11.2M					$.2M			$11.4M
Global Fund[3]				$12.8M	$4.7M			$1.8 M	$19.3M
AMF[4]		$25.8M							$25.8M
Total	$11.2M	$25.8M	$0.0M	$12.8M	$4.7M	$.2M	$0.0M	$1.8 M	$56.5M

Note: Categories 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 but may continue to evolve. 1. Indoor residual spraying (IRS) insecticide: for PMI, commodity costs may be inextricable from IRS implementation costs in historical data – field identified as ND where this is the case. 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 the table above only include ex-works commodity value; additional costs, including quality control, freight, insurance, and customs total $39,086,275 over the CY 2021–2023 period; 4. Against Malaria Foundation ITN costs only reflect ex-works costs as other donors pay for freight and transport to the port of entry in DRC.

V. ACTIVITIES TO BE SUPPORTED WITH FY 2022 FUNDING

The FY 2022 budget tables contain a full list of activities that PMI proposes to support in the Democratic Republic of the Congo with FY 2022 funding. Please visit www.pmi.gov/resource-library/mops for these FY 2022 budget tables. Key data used for decision-making for this MOP planned investments is provided in Annex A of this document.

ANNEX A: INTERVENTION-SPECIFIC DATA

This section outlines key data that helped inform decision-making around FY 2022 MOP funding allocations to PMI-supported activities.

1. VECTOR CONTROL

NMCP Objective

Under the NMCP Strategic Plan for 2020–2023, the DRC seeks to achieve high ownership and use of ITNs among the general population, with the goal that at least 80 percent of the population will sleep under an ITN by 2023. The NMCP's National Strategy proposes piloting indoor residual spraying (IRS) in specific zones and producing associated norms and directives.

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 nets 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.
- Although the recent ITN durability monitoring has reported an average of two years survival life for a standard ITN, the DRC NMCP recommends replacing ITNs every three years due to the financial and logistic constraints. Considering the distribution of insecticide resistance in the country, the NMCP plans to distribute new ITNs (PBO and G2) in almost 175 health zones around the country.
- 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 to inform policy.

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 ITNs procurement.
- Support to the vector control working group of the NMCP.

PMI-Supported Recent Progress (FY 2019 funded activities)

- Supported monitoring effectiveness of PBO ITNs distributed in Sud Ubangi.
- Conducted entomological surveillance and insecticide resistance monitoring in 13 sites including monthly monitoring in three sites (Inongo, Kimpese, and Lodja).
- Supported entomological training of 12 staff from the four new sites of Lisala, Mbandaka, Dibindi, and Mweneditu.
- Supported procurement and distribution of 1,376,090 ITNs through ANC and child vaccination clinics in the nine PMI-supported provinces, including 400,885 ITNs procured by the Global Fund.

The COVID-19 pandemic had a significant impact on the implementation of activities. Travel restrictions and physical distance delayed some activities. The NMCP developed a mass campaign distribution manual to accommodate the COVID-19 context. Additionally, the Dawa nets quarantined as a result of manufacturing quality issues had a negative impact on routine distribution, causing stockouts in several health zones. The quarantine of DawaPlus® 2.0 ITNs was lifted in February 2020 and routine ITNs were distributed. The remaining DawaPlus® 2.0 ITNs will be distributed through a mass campaign in Lualaba province during the second semester of 2021.

PMI did not conduct any planned mass campaigns or school distributions due to the absence of a distribution mechanism.

PMI-Supported Planned Activities (FY 2020 funded activities)

- Conduct insecticide resistance monitoring in 14 sites.
- Conduct vector bionomics monitoring monthly in three sites.
- Procure 2.4 million standard ITNs for distribution via continuous distribution through ANC and vaccination clinics.
- Distribute 2.4 million ITNs via continuous distribution through ANC and vaccination clinics and 1,825,060 AMF or Global Fund procured ITNs through mass campaigns.
- Support operational costs for the mass campaign in Lualaba province in 2023.
- Conduct community mobilization activities in conjunction with ITN distribution during routine distribution or mass campaigns.
- Conduct baseline durability monitoring data collection in Tanganyika province.

1.1 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.

Key Question 1

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

Table A-1. Entomological monitoring activities planned for 2021

Site	Province	Activities*	Supported by
Kimpese	Kongo Central	HLCs, PSCs, insecticide susceptibility	PMI
Lodja	Sankuru	HLCs, PSCs, insecticide susceptibility	PMI
Inongo	Maï-Ndombe	HLCs, PSCs, insecticide susceptibility	PMI
Kapolowe	Haut Katanga	insecticide susceptibility	PMI
Katana	Sud Kivu	insecticide susceptibility	PMI
Pawa	Haut Uele	insecticide susceptibility	PMI
Karawa	Nord Ubangi	insecticide susceptibility	PMI
Kingasani	Kinshasa	insecticide susceptibility	PMI
Mbandaka	Equateur	insecticide susceptibility	PMI
Mweneditu	Lomami	insecticide susceptibility	PMI
Lisala	Mongala	insecticide susceptibility	PMI
Boende	Tshuapa	insecticide susceptibility	PMI
Tanganyika	Manono health zone	ITN bioefficacy/durability	PMI
Tanganyika	Kalemie health zone	ITN bioefficacy/durability	PMI
Bogose-nubea	Sud Ubangi	PSCs, ITN bioefficacy/durability	PMI
Bominenge	Sud Ubangi	PSCs, ITN bioefficacy/durability	PMI
Bulu	Sud Ubangi	PSCs, insecticide susceptibility, ITN bioefficacy/durability	PMI
Gemena	Sud Ubangi	PSCs, insecticide susceptibility, ITN bioefficacy/durability	PMI
Bwanmanda	Sud Ubangi	PSCs, ITN bioefficacy/durability	PMI
Tandala	Sud Ubangi	PSCs, ITN bioefficacy/durability	PMI

*HLC = human landing catch, PSC = pyrethrum spray catch.

Figure A-1. 2021 Entomological monitoring sites for routine surveillance and insecticide resistance monitoring activities

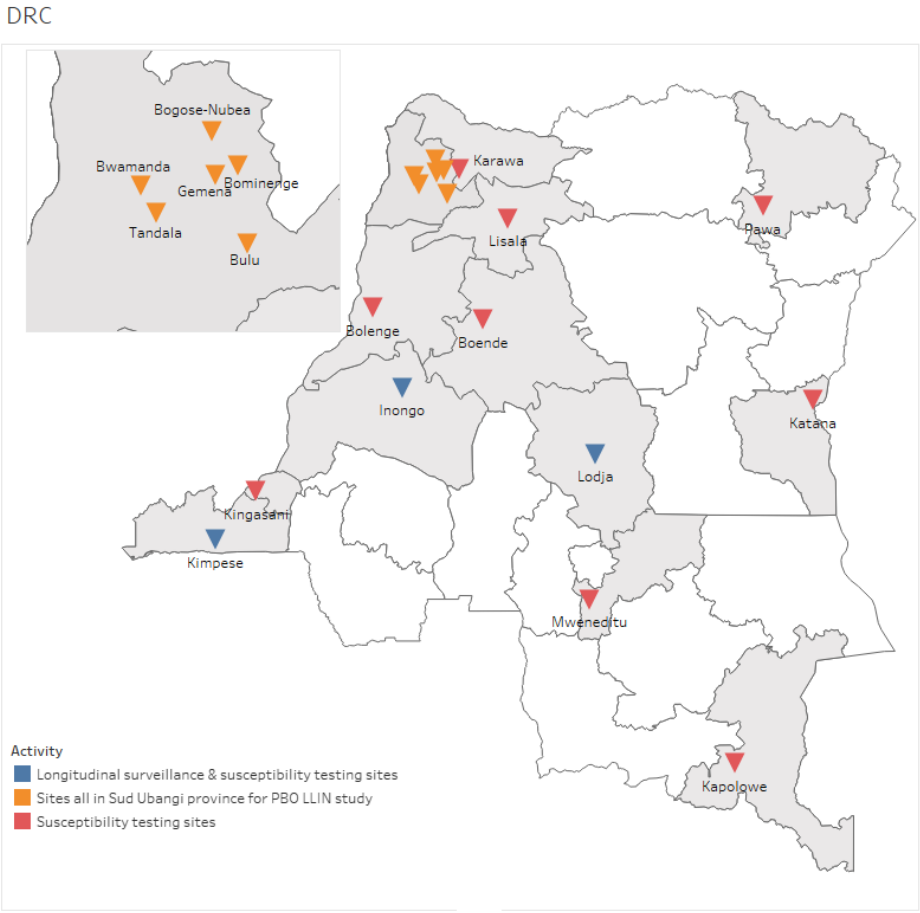


Table A-2. Distribution and bionomics of malaria vectors (preliminary 2020 data)

Site/ District	Vector*	Season (month)	Preferred Biting Location	Peak Biting Time	Preferred Resting Location**	Preferred Host	Annual EIR†
Kimpese (Kongo Central)	*An. funestus s.l.*	Abundant in the dry season	Indoor and outdoor	01:00-02:00 indoors, 04:00-05:00 outdoors	ND	ND	195
Kimpese (Kongo Central)	*An. gambiae* s.l.	Abundant in the rainy season (December – March)	Indoor and outdoor	04:00-05:00 indoors, 02:00-03:00 outdoors	ND	ND	75
Inongo (Mai Ndombe)	*An. gambiae* s.l.	Abundant in the rainy seasons	Indoor and outdoor	20:00–21:00 indoors, 18:00-19:00 outdoors (numbers generally low)	ND	ND	8
Lodja (Sankuru)	*An. gambiae* s.l.	Abundant year-round	Indoor and outdoor	22:00–23:00 indoors, 23:00-00:00 outdoors	ND	ND	218

*Primary vector listed first, in bold, followed by secondary vectors.

** Marked as ND if collections did not allow the determination of preference.

† EIR = entomological inoculation rate

Please refer to The PMI VectorLink Democratic Republic of Congo Entomological Monitoring Annual Report January–December 2019 for additional information.

Key Question 2

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

Figure A-2. Percentage mortality of *An. gambiae* s.l. after exposure to permethrin at ×1, ×5, and ×10 times the diagnostic concentration in WHO tube tests in 13 sites in 2020

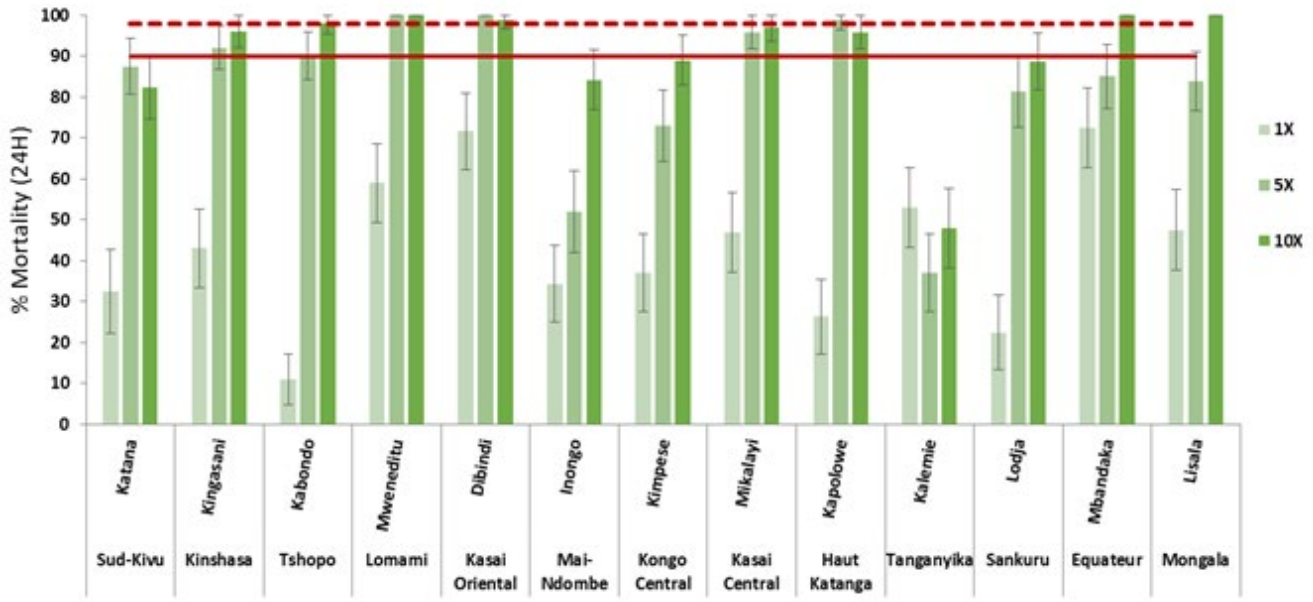
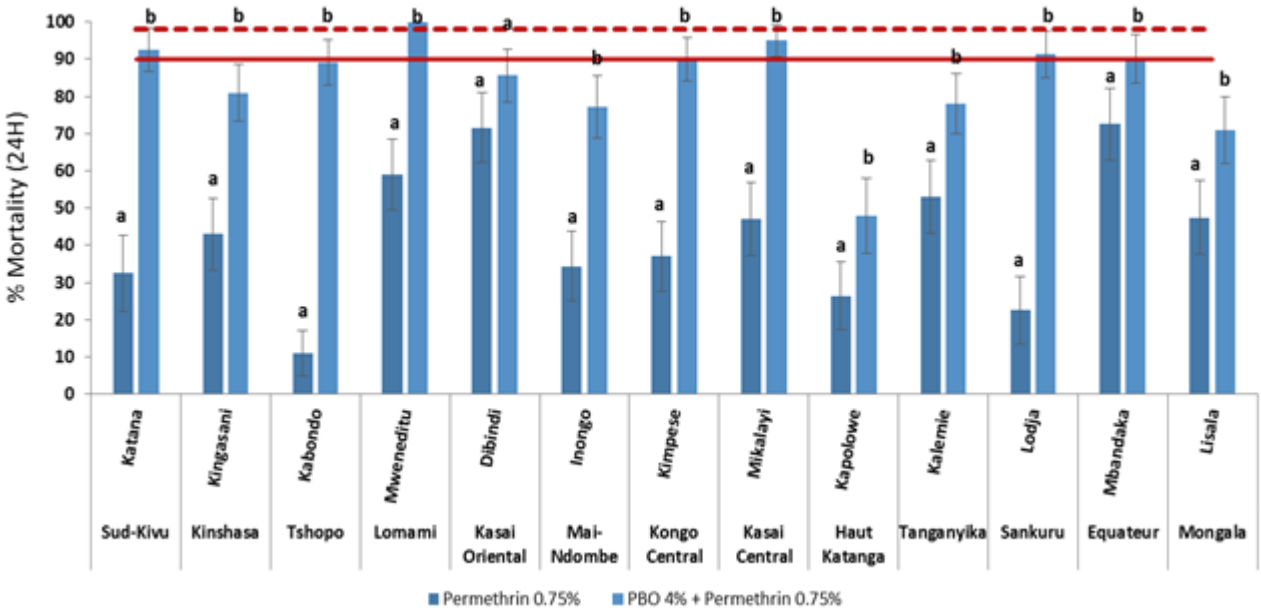
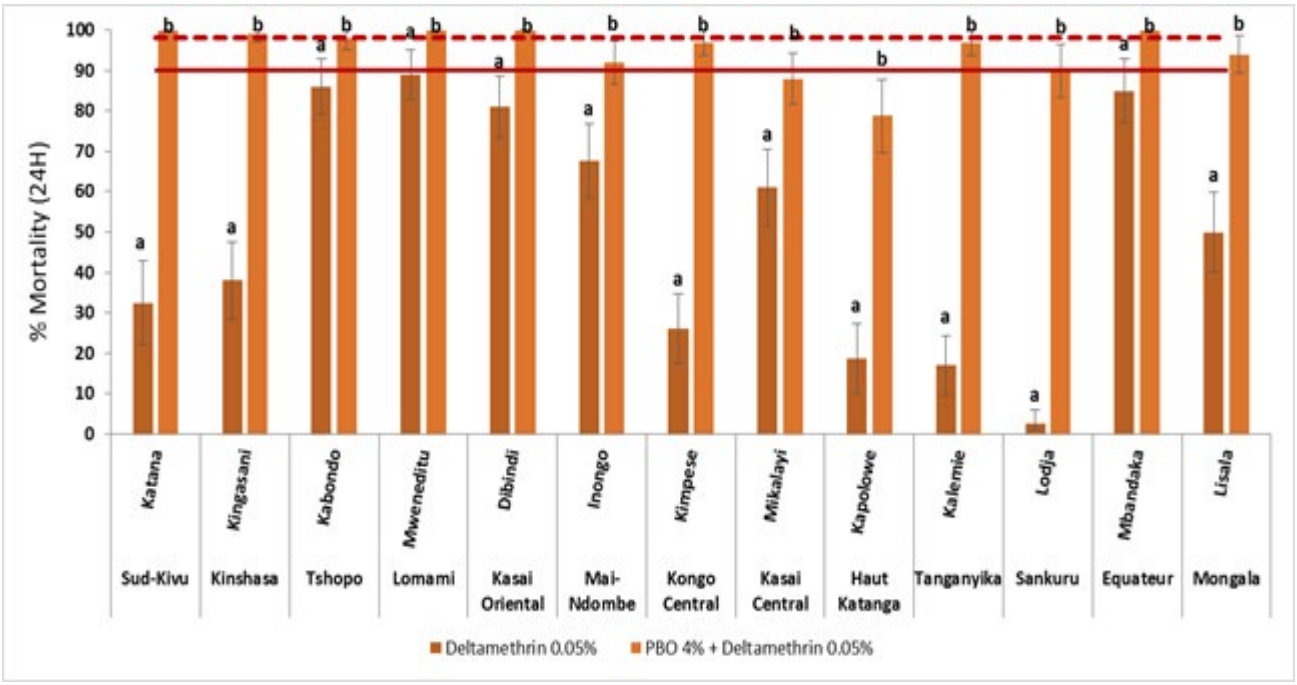


Figure A-3. Percentage mortality of *An. gambiae* s.l. after pre-exposure to PBO followed by permethrin at the diagnostic concentration in WHO tube tests in 13 sites in 2020



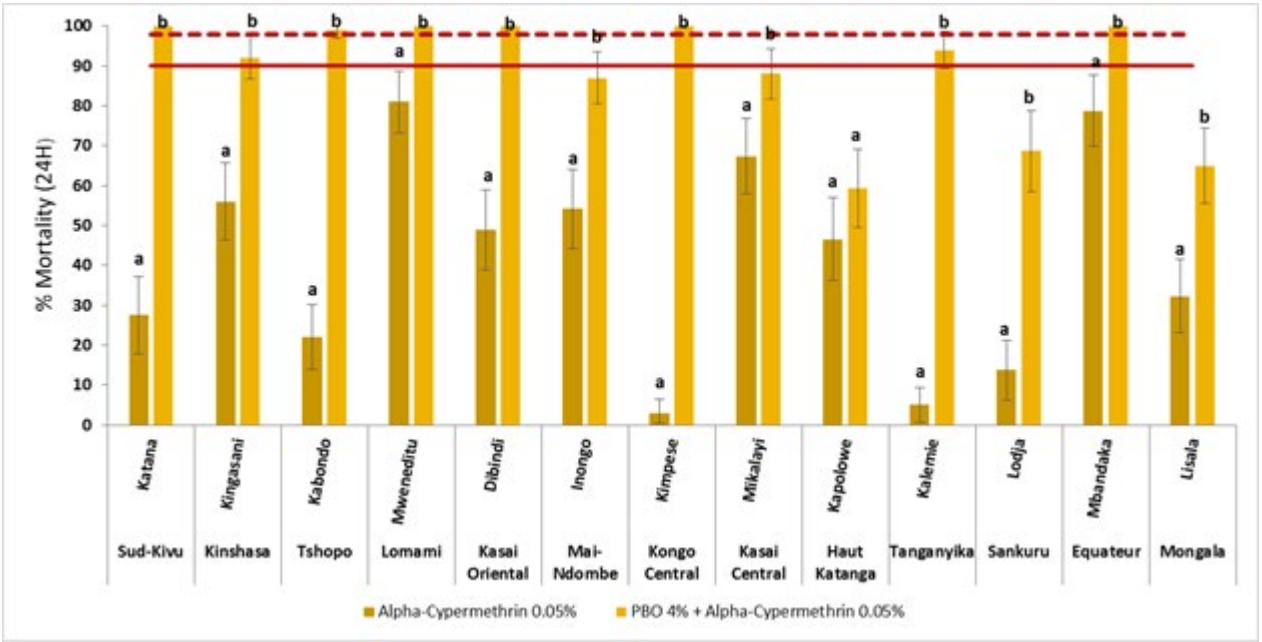
Superscript indicates whether percent mortality for permethrin is significantly different to percent mortality for permethrin + PBO. a, b = significant difference $P<0.05$, a, a = no significant difference $P>0.05$.

Figure A-4. Percentage mortality of *An. gambiae* s.l. after pre-exposure to PBO followed by deltamethrin at the diagnostic concentration in WHO tube tests in 13 sites in 2020



Superscript indicates whether percent mortality for deltamethrin is significantly different to percent mortality for deltamethrin + PBO. a, b = significant difference P<0.05, a, a = no significant difference P>0.05.

Figure A-5. Percentage mortality of *An. gambiae* s.l. after pre-exposure to PBO followed by alpha-cypermethrin at the diagnostic concentration in WHO tube tests in 13 sites in 2020



Superscript indicates whether percent mortality for alpha-cypermethrin is significantly different to percent mortality for alpha-cypermethrin + PBO. a, b = significant difference P<0.05, a, a = no significant difference P>0.05.

In addition, complete susceptibility to chlorfenapyr (100µg/bottle, 48h mortality) was found in all six sites where bioassays were conducted (Mweneditu, Dibindi, Inongo, Kimpese, Mbandaka, and Lisala). Susceptibility testing was not conducted in the other monitoring sites due to the complexity of the assay.

Conclusions for Entomological Monitoring Investments

DRC is a vast country, and given current funding levels, PMI can only support 10–16 routine surveillance sites per year. The PMI/DRC team is proposing to maintain similar entomological monitoring activities for FY 2022, although longitudinal monitoring will start monitoring human behavior in addition to vector behavior. Routine surveillance will continue in selected sites based on the upcoming bed net distribution plan.

- In previous years, Global Fund also supported entomological monitoring sites. However, no additional entomological monitoring sites were funded through the Global Fund in 2020, and there is no current indication that the Global Fund will support entomological monitoring over the next few years. Given the size of the country and limited funding available, there is always likely to be a gap in entomological monitoring in DRC.
- Pyrethroid resistance was widespread in the 13 provinces tested in 2020. Mosquitoes were not susceptible to the pyrethroids tested (permethrin, deltamethrin, and alphacypermethrin) at the diagnostic dose in any of the sites. Resistance intensity was high to permethrin in eight sites, deltamethrin in five sites, and alphacypermethrin in nine sites. There were four sites (Katana, Kingasani, Kimpese, and Kalemie) that had high insecticide resistance to all three insecticides tested.
- Synergist bioassays were conducted with permethrin, deltamethrin, and alphacypermethrin. The addition of PBO to permethrin generally increased mortality over permethrin alone, but susceptibility was fully restored in only one site with the addition of PBO (Mweneditu). The addition of PBO to deltamethrin or alphacypermethrin restored susceptibility in 6/13 sites, indicating that PBO-ITN with deltamethrin+PBO or alphacypermethrin+PBO would be a better choice than permethrin+PBO ITN in these sites.
- CDC bottle bioassays using a provisional diagnostic dose of 100µg/bottle for chlorfenapyr (until WHO releases further guidance) produced 100 percent mortality in Mweneditu, Dibindi, Inongo, Kimpese, Mbandaka, and Lisala within 48 hours of exposure, indicating that nets with chlorfenapyr might be effective in DRC.
- This level of pyrethroid resistance is concerning and next-generation nets, including PBO and chlorfenapyr, in addition to pyrethroids should be considered in DRC. Although the PMI/DRC team received extra funds in FY 2020 to purchase next generation nets for Nord Ubangi, generally the PMI/DRC team does not have sufficient funds to purchase PBO or next-generation nets. However, the PMI/DRC entomological data is shared with other donors (such as AMF) to help inform their ITN procurements.

Please see FY 2022 PMI budget tables for a detailed list of proposed activities with FY 2022 funding.

1.2 INSECTICIDE-TREATED NETS (ITNs)

Key Goal

Achieve high ITN coverage and use targets with effective nets, based on insecticide resistance data, in PMI-supported areas; and maintain high coverage and use with consistent ITN distribution (via campaigns and/or continuous channels).

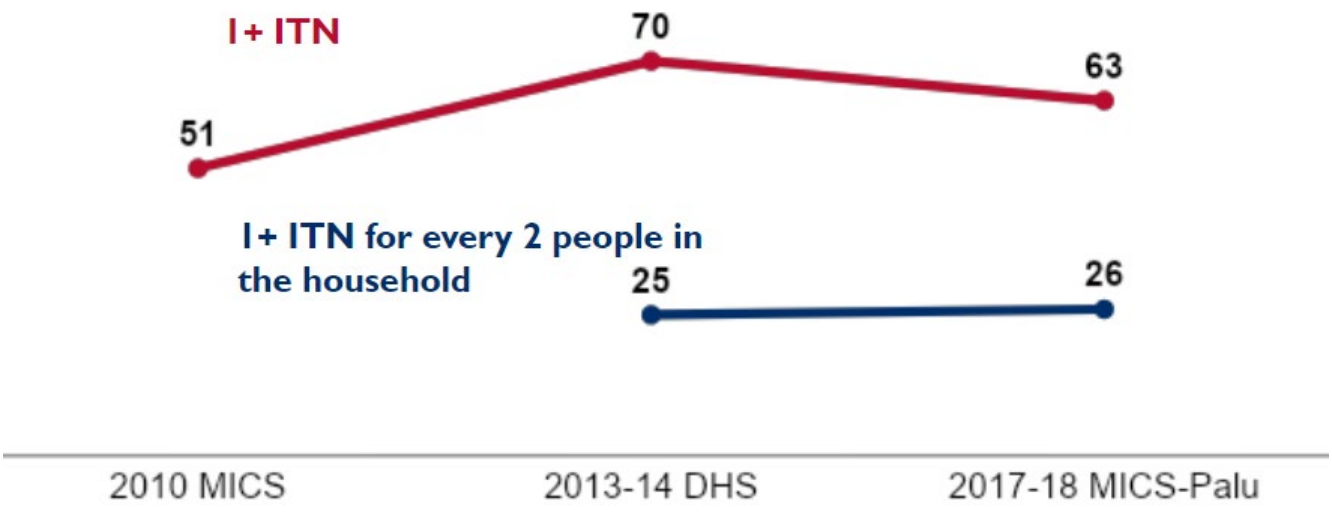
Key Question 1

How has net ownership evolved since the start of PMI in the country?

Supporting Data

Figure A-6. Trends in ITN ownership

Percentage of households that own ITNs



Conclusion

There is a decrease in ITN ownership of at least one net between the 2013–2014 DHS (70 percent) and the 2017–2018 MICS (63 percent). This can be explained by the delay in mass distribution campaigns following the change in Global Fund implementing partners 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 had access to a bed 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 Global Fund and AMF to increase and maintain access to and use of ITNs by the general population.

Key Question 2a

What proportion of the population has access to an ITN? Of those who have access, what proportion of the population reports using an ITN?

Supporting Data

Figure A-7. Trends in ITN access and use

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

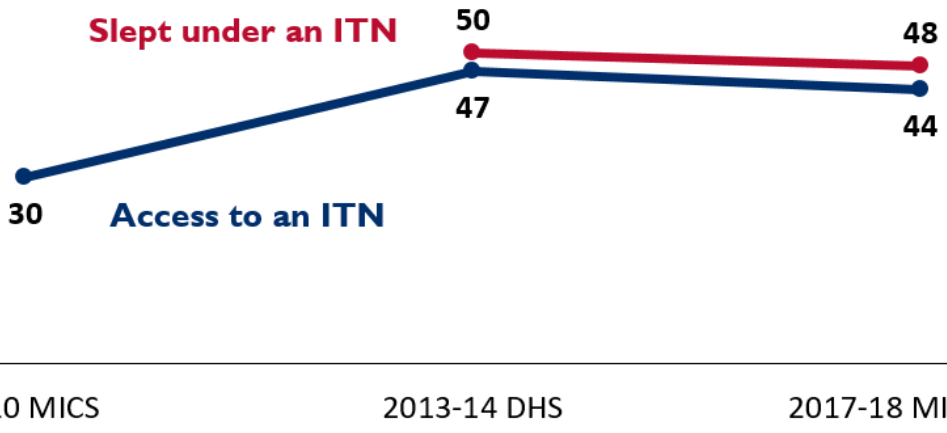


Figure A-8. DRC ITN use:access ratio map

Key Question 2b

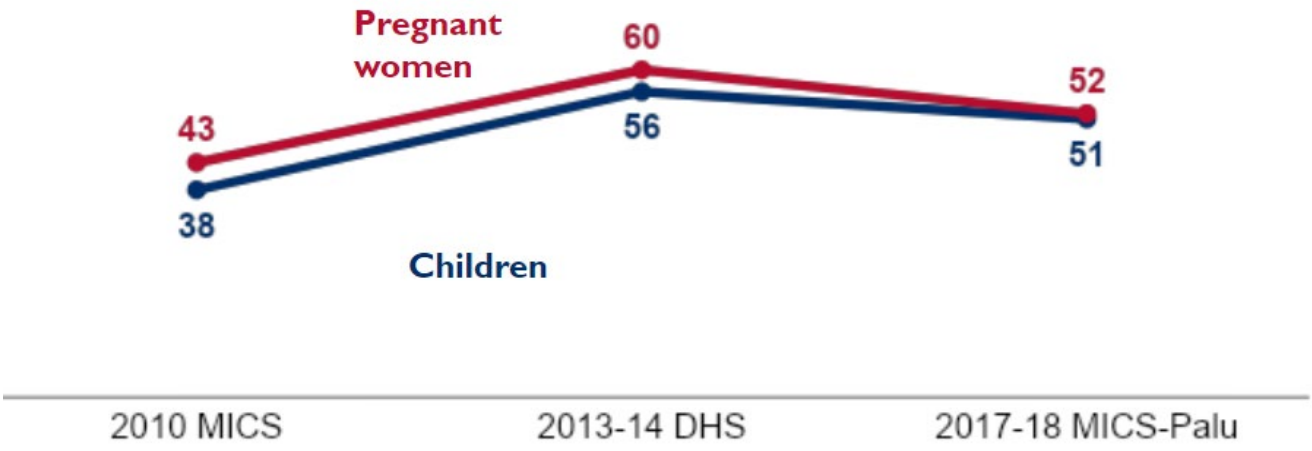
What percent of pregnant women and children under five years of age report sleeping under an ITN?

Globally in DRC, the 2017–2018 MICS survey reported that just over 50 percent of children under five years of age and pregnant women reported sleeping under an ITN the night before the survey (51 percent and 52 percent, respectively). In households with at least one ITN, those percentages increase to 84 percent of children and 91 percent of pregnant women. PMI-supported provinces met the NMCP target of at least 80 percent, except Sud Kivu and Kasai Central. Children under five years of age and pregnant women are prioritized for ITN use in households that have some but not enough ITNs.

Supporting Data

Figure A-9. Trends in ITN use among children and pregnant women

Children under age five and pregnant women 15 to 49 years of age who slept under an ITN the night before the survey



Key Question 3

If ITN access is high but use is low, what significant structural and/or behavioral challenges affect the adoption and maintenance of ITN use and care behaviors?

Supporting Data

Across DRC, use of ITNs given access is consistently high. The national average for the use:access ratio per the 2017–2018 MICS is 1.11 with the vast majority of provinces (including PMI provinces) at or over 1.0 except for Kasai Central (0.59). Children under five years of age and women of reproductive age appear to be prioritized over school-aged children when there are an insufficient number of nets in the household, but this evens out as the number of nets in the household increases. There are minor differences according to wealth quintile and urban/rural with poorer, more rural households having slightly lower use given access, but overall, there is not an indication that net use is a behavioral issue in DRC; rather it is dependent on access. Therefore, the main barrier to net use in DRC seems to be structural, with a need for PMI to continue to support mass campaigns and routine distribution. Data from the MBS, to be implemented in June 2021, 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).

With respect to net care behaviors, data from the 2016–2019 ITN durability monitoring study provide some indication that net care behaviors may be a challenge. Both types (or brands) of nets monitored were well under the three-year expected median survival. Most durability risk factors were similar between the two sites (e.g., cooking in the sleeping rooms, use of finished bed frames). But there was one difference in results, in that in one site, respondents had a much more positive attitude toward net care in spite of similarly low behavior change

communication message exposure at both sites. Data from the MBS will provide additional data on net care behaviors in DRC.

Key Question 4

What type of nets are being distributed via which channels?

PMI is distributing DawaPlus® 2.0 (deltamethrin 80mg/m^2), Yorkool (deltamethrin 55mg/m^2), and MAGNet (alphacypermethrin 5.8g/Kg ± 25 percent received from SANRU, the Global Fund recipient) through ANC and vaccination clinics.

Supporting Data

Table A-3. Insecticide-treated net (ITN) distribution in 2020

Province	Mass Campaign	ANC	EPI	School	Community	Other
Nine PMI-supported provinces		735,925	407,234			

Key Question 5

What is the estimated need for ITNs during calendar years 2021–2023? How many, and what types, of ITNs will be procured, and by what partners? Through what channels will ITNs be distributed? Are there any projected ITN gaps?

Supporting Data

Quantification Assumptions for ITNs

- In December 2020 DRC conducted a national quantification and the FY 2022 MOP gap analysis is based on the results from that exercise. The gap analysis is done for PMI supported provinces only
- For continuous distribution, the gap analysis is done for ITNs for antenatal care (ANC) and for the Expanded Program on Immunization (EPI) as well as for mass campaigns for 2023. Due to budget constraints no school-based campaigns are planned for 2023 under PMI funding. The school-based campaign gap analysis reflects planned school-based campaigns in 2021 and 2022.
- For mass campaigns no ITN procurement was planned due to budget constraints. PMI/DRC has begun advocacy with other donors to fund these ITN needs.
- For ANC, the percent of pregnant women in PMI-supported provinces is assumed to be 4 percent and utilization of ANC care is assumed to be 91 percent as per HMIS data.
- For EPI, the eligible population is 3.5 percent of the total population and service utilization is estimated at 94.5 percent
- The total need for continuous distribution for EPI and ANC for FY 2021 is about 2.969 million; however, there are about 2.636 million nets already in stock so no procurement is planned. For FY 2022, the total need is about 3.055 million and about 3.046 million is planned for procurement. For FY 2023, the total need is about 3.144 million and no procurement is planned at this time.

Note: This gap analysis is related only to PMI-targeted provinces because in DRC each main donor has its specific target (there is no overlap between donors although transfers between donors in the event of shortages is possible).

Table A-4. ITN Gap Analysis Table

Calendar Year	2021	2022	2023
Total country population	113,050,274	116,328,732	119,702,266
Total population at risk for malaria	113,050,274	116,328,732	119,702,266
PMI-targeted at-risk population	42,723,013	43,961,980	45,236,878
Population targeted for ITNs	42,723,013	43,961,980	45,236,878
Continuous Distribution Needs			
Channel 1: ANC	1,560,877	1,606,142	1,652,720
Channel 2: EPI	1,408,698	1,449,551	1,491,588
Channel 3: School			
Channel 4:			
Additional ITNs required to avoid ITN stockouts			
Estimated Total Need for Continuous Channels	2,969,575	3,055,693	3,144,308
Mass Campaign Distribution Needs			
Mass distribution campaigns			
Estimated Total Need for Campaigns	0	0	0
Total ITN Need: Continuous and Campaign	***2,969,575***	***3,055,693***	***3,144,308***
Partner Contributions			
ITNs carried over from previous year	2,636,644	0	0
ITNs from Government			
ITNs from Global Fund			
ITNs from other donors			
ITNs planned with PMI funding		3,046,826	2,550,121
Total ITNs Contribution Per Calendar Year	***2,636,644***	***3,046,826***	***2,550,121***
Total ITN Surplus (Gap)	***-332,931***	***-8,867***	***-594,187***

Table A-5. Mass Campaign Gap Analysis Table

Calendar Year	2021	2022	2023
Total country population	0	0	0
Total population at risk for malaria	0	0	0
PMI-targeted at-risk population	0	0	0
Population targeted for ITNs	11,130,740	12,547,632	3,227,667
Kasai Central	5,280,516		
KWANGO	2,801,922		
LUALABA	3,048,302		
KASAI		5,159,965	
KASAI ORIENTAL		5,596,094	
NORD-UBANGI		1,791,573	
LUALABA			3,227,667
Continuous Distribution Needs			
Channel 1: ANC			
Channel 2: EPI			
Channel 3: School			
Channel 4:			
Additional ITNs required to avoid ITN stockouts			
Estimated Total Need for Continuous Channels	0	0	0
Mass Campaign Distribution Needs			
Mass distribution campaigns	6,183,744	6,970,907	1,793,148
Estimated Total Need for Campaigns	6,183,744	6,970,907	1,793,148
Total ITN Need: Continuous and Campaign	***6,183,744***	***6,970,907***	***1,793,148***
Partner Contributions			
ITNs carried over from previous year	6,133,095	0	1,070,776
ITNs from Government			
ITNs from Global Fund			
ITNs from AMF		6,900,000	
ITNs planned with PMI funding		1,141,683	
Total ITNs Contribution Per Calendar Year	***6,133,095***	***8,041,683***	***1,070,776***
Total ITN Surplus (Gap)	***-50,649***	***1,070,776***	***-722,372***

Key Question 6

What is the current status of durability monitoring?

Table A-6. Timing of durability monitoring

Campaign Date	Site	Brand	Baseline	12-month	24-month	36-month
2016	Sud Ubangi (Ndage Health Zone)	Duranet	X	X	X	X
2016	Mongala (Binga Health Zone)	DawaPlus 2.0	X	X	X	X

The final report on durability monitoring can be found here Durability Monitoring of LLINs in Democratic Republic of Congo (pmi.gov).

Table A-7. Results of durability monitoring

Site	Survey and Time Since Distribution (months)	Attrition to Wear and Tear (%)	Nets in Serviceable Condition (%)	Optimal Insecticidal Effectiveness in Bioassay (%)
Sud Ubangi	12m: 12.0	1.5	90.3	83.3
	24m: 21.0	11.7	66.9	86.7
	36m: 30.9	25.9	59.0	100
Mongala	12m: 12.1	10.1	80.1	100
	24m: 20.8	32.8	62.3	90.0
	36m: 30.6	47.8	52.1	10.0

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 than DawaPlus 2.0 (100-denier polyester) in Mongala. The all-cause attrition (losses for any reason) varied between 57 percent in Sud Ubangi and 76 percent in Mongala. Bioassays using WHO cone tests showed optimal insecticidal performance up to the final survey for the DuraNet ITN brand. Estimated median survival was 1.6 years for the DawaPlus 2.0 in Mongala (95 percent, confidence index [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 SBC communication message exposure at both sites. Implication on programming: In this DRC environment, it will be preferable to distribute a more durable ITN, such as the DuraNet or similar brands. While a two-year distribution cycle has been proposed, this does not seem feasible with current funding. Baseline data collection for the next round of durability monitoring will start early in April 2021 in Tanganyika province in two health zones, Kalemie and Manono, where Veeralin (alphacypermethrin

[6.0g/kg] and PBO [2.2g/kg]) and SafeNet (alphacypermethrin alone [5.0g/kg]) nets were distributed in December 2020.

Conclusions for ITN Investments

The proposed budget is a continuation of ITN activities from the past few years. Although PMI/DRC continues to collect data showing that next generation nets are needed, the PMI/DRC budget envelope only permits the procurement of standard ITNs, and even those are procured in insufficient quantities. With current FY 2022 funding levels, PMI/DRC has insufficient resources to procure standard ITNs to meet calendar year 2023 needs for routine distribution in PMI provinces or to procure any standard ITNs for mass campaigns. Furthermore, access to ITNs is low, but use given access is high, indicating that if people have ITNs, they will use them. Durability monitoring conducted in Sud Ubangi indicated a short life of ITNs, which may result in people not being covered for the three years (or more) between campaigns. EPI, ANC, and school-based distributions help to increase the numbers of nets, but there are still not enough nets that last long enough to properly protect the Congolese population. If the PMI/DRC team receives additional FY 2022 funding, the procurement of sufficient quantities of routine nets to meet PMI-supported province needs will be prioritized.

Please see FY 2022 PMI budget tables for a detailed list of proposed activities with FY 2022 funding.

1.3 INDOOR RESIDUAL SPRAYING (IRS)

PMI does not engage in IRS in DRC.

2. HUMAN HEALTH

2.1 CASE MANAGEMENT

NMCP Objective

The main NMCP case management objective, according to the 2020–2023 National Malaria Strategic Plan, is to 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 define a suspected malaria case as anyone with a fever or history of fever within the past 24 hours, with or without other symptoms or signs of severity. All suspected malaria cases should be tested using a Rapid Diagnostic Test (RDT) at either a health facility, community care site, or approved pharmacy. Children under five years of age with fever should be managed according to the Integrated Management of Childhood Illness guidelines, which also include diagnostic testing for malaria.
- Per national policy, microscopy is limited to suspected cases of treatment failure or any severe malaria case to monitor parasite clearance. It is also used for identification of parasite species. Microscopy can only be conducted at facilities with proper equipment and trained laboratory staff; this is generally limited to the referral health facility level.

- Per national policy, any suspected case testing positive for malaria using an RDT or microscopy should be treated with one of the three first-line ACTs: artesunate-amodiaquine (ASAQ), artemether-lumefantrine (AL), or artesunate-pyronaridine (Pyramax). Pyramax has been authorized for use in DRC but not yet rolled out. In the case of unavailability of first-line ACTs, the policy recommends treatment with quinine-clindamycin.
- For pre-referral treatment of severe malaria, rectal artesunate is recommended, or injectable artesunate intramuscularly if the rectal route cannot be used. After pre-referral treatment, the patient should be directed immediately to a health facility with the appropriate equipment to continue treatment.
- Injectable artesunate is the recommended treatment for severe malaria in adults, children over two months of age, and pregnant women in their second and third trimesters. Injectable artesunate should be administered for at least 24 hours and until the patient can tolerate oral medication. Injectable treatment should be followed by an ACT (ASAQ, AL, or Pyramax) at the recommended doses for 3 days. Artemether (intramuscular) or quinine infusion may be used if injectable artesunate is not available. For infants under two months of age with severe malaria, quinine infusion is recommended, followed by quinine drops to reach seven days of treatment.
- For pregnant women in their first trimester with severe malaria, quinine infusion followed by quinine tablets combined with clindamycin hydrochloride capsule for seven days is recommended. According to the MICS 2017–2018, among children with a fever in the two weeks prior to the interview, 20.2 percent reported seeking care in the public sector and 25.5 percent in the private sector. Out of all children with a fever who sought care and received an antimalarial, 58.7 percent received an antimalarial drug from the public sector and 38.5 percent from the private sector.
- The PNDS highlights the important role the private health sector plays in service delivery. Nonprofit/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. Although the presence of the private sector varies by province, a 2017 assessment of the role of the private sector in improving health system performance in the DRC co-funded by USAID, the World Bank, in partnership with the International Finance Corporation, and BMGF indicated that the private sector accounted for 46 percent of health facilities in a sample of 469 hospital structures.
- In addition to the hospital level, there are authorized (licensed) private lower-level health facilities across the country. These facilities are concentrated in urban health zones, with almost 60 percent in Kinshasa. The DRC's malaria case management policy also allows drug shop pharmacists to confirm uncomplicated malaria cases with RDTs and treat them with ACTs.
- There are important differences in treatment availability in public and private outlets. The last ACTWatch survey conducted in DRC in 2015 in Kinshasa and Katanga provinces found that drug shops represented 69 percent of outlets in Kinshasa and 59 percent in Katanga out of all outlets with the potential to sell or distribute antimalarials within a representative sample of clusters. In Kinshasa, 87 percent of public sector outlets stocked quality-assured ACTs compared with only 22 percent in private facilities. In Katanga this figure was 92 percent of public sector facilities compared with 53 percent in private facilities.
- The national community outreach approach to health is rooted in community engagement through CHWs, placing an emphasis on community accountability and ownership through sustainable actions performed by community members. At the community level, integrated community case management (iCCM) is provided at community care sites (*sites des soins communautaire*). The National Guide for Implementation of Community Care Sites defines the package of services at the community level to include the referral of severe malaria cases and treatment of uncomplicated malaria cases in children

under five years of age. It also allows the treatment of malaria in children over five years of age and in adults. Currently in the PMI zones, malaria treatment is targeted only to children under five years of age.

- As described in the National Guide for Implementation of Community Care Sites, for every 500 inhabitants in a community, there is one CHW. CHWs provide two types of services in the community: prevention and treatment. The minimal package of malaria services which CHWs are trained to provide at the community level include diagnosis (RDT) and treatment (ACT) according to the national algorithm, and patient follow-up and referral of complicated cases to the health center. CHWs are also trained to treat diarrhea and acute respiratory infection.
- There is no formal monetary compensation provided to CHWs, but they do receive both extrinsic (transportation reimbursement, bicycles, T-shirts, and hats) and intrinsic motivation (training, respect and recognition in their community, work supplies and equipment, and connections to the health center). Criteria for selection of CHWs include a minimum level of education as well as having an established source of income, separate from their unpaid health activities. CHWs are trained approximately every two to three years in malaria, pneumonia, and diarrhea diagnosis and treatment.
- From the NMCP SM&E guidelines perspective, supervision is a routine activity organized by the higher hierarchical level to improve the performance of health service providers. In particular, it must be organized in health facilities and is associated with rollout of a new training, strategy/policy update, new program integration, instances of underperformance, or staffing transitions.
- To be effective, malaria program supervisors should possess greater skill and experience than their supervisees (e.g., specialists supervise general practitioners for clinical aspects in the hospital), should be experienced in malaria technical areas, and should have the ability to influence others for positive change. Supervisors should also be aware of health communication activities and mass campaigns relevant to their health facility and have a good sense of how health zones function and how activities are coordinated at the provincial level. The NMCP, with PMI support, has adopted the Outreach Training and Supportive Supervision (OTSS) tool as a malaria case management-specific supervision tool. CHWs receive monthly supervision from health center nurses, quarterly supervision from health zone representatives, and biannual joint supervision including representation from the health center, health zone, and national level.
- With the recent reform of the Ministry of Health, some Provincial Divisions of Health (DPS) have integrated all provincial coordination of specialized programs into one singular Office of Health Zones support (*Bureau d'appui aux Zones de Santé*) resulting in malaria integration into the broader supervision framework. It is difficult for DPS to have staff members with expertise in every specific program covered under the integrated framework; therefore, it can be a challenge for these staff members to look at all required aspects of activity implementation and provide needed support to health service providers at each site visit, or to conduct joint supervision with skilled staff from different programs at once. DPS and Health Zone management staff, as well as those in charge of health centers, require payment of a direct fee to undertake supportive supervision to health facilities.

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 CHWs. 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 TWG to convene regular meetings. PMI is also providing support

for a pilot implementation program focused on continuous quality improvement (CQI) in Haut-Katanga, which aims to improve the quality of malaria case management services. In addition, PMI supports efforts to improve pre-service training in the DRC by assessing and updating curricula across various training institutions.

PMI-Supported Recent Progress (FY 2019 funded activities)

The following activities were supported by PMI with FY 2019 funds:

- NMCP training of 2,243 health service providers in malaria case management including diagnostics and treatment, and refresher training to 794 community health workers.
- 920 iCCM monthly supervisions, and provision of small equipment to 400 iCCM sites for CHWs.
- MOH training of 107 lab technicians in malaria microscopy and implementation of internal and external microscopy quality assurance at referral level facilities in the nine PMI-supported provinces.
- Two rounds of OTSS+ to 109 health facilities using the digital tool.
- Procurement and distribution of 6.5 million RDTs, 6.8 million ACTs, 1 million vials of injectable artesunate, and 15,730 rectal artesunate suppositories to reference hospitals, health centers, and community care sites in 178 health zones; treatment of 4,429,087 children under five years of age with confirmed malaria.

The direct fee payment for provincial health zones' management team staff, and nurses in charge of health centers for supportive supervision implementation was a major bottleneck for the implementation of case management activities. PMI's service delivery partner was logistically constrained in its ability to pay these fees on-site, which had a negative impact on the frequency with which supervision and monthly monitoring was conducted over the past year. PMI is looking into alternate payment approaches, including mobile money transfer, pending risk mitigation analysis.

PMI-Supported Planned Activities (FY 2020 funded activities)

The following activities will be supported by PMI with FY 2020 funds:

- Support in-service training and supervision of 2,161 existing facility health workers responsible for the management of both uncomplicated and severe malaria.
- Support initial training of 500 new CHWs and refresher training and supervision of 1,000 existing health workers who offer iCCM for malaria, diarrhea, and pneumonia at community care sites.
- Provide approximately 500 new community care sites with 500 kits for iCCM, and replace 631 iCCM kits for 631 existing iCCM, including a storage cabinet, timer, raincoat, T-shirt, cap, flashlight, and bicycle.
- Support NMCP to conduct supervision of malaria control activities at the provincial level (two national supervisors conduct semiannual supervision visits to nine provinces).
- Support training 123 members of the provincial polyvalent teams on the Health Network Quality Improvement System (HNQIS) tool to improve the quality of supervision visits.
- Support the training of 90 DPS staff members to become trainers on malaria case management.
- Provide support to TWG meetings at the national level.
- Strengthen quality assurance of malaria diagnosis by microscopy at health facilities in nine provinces by training 46 laboratory specialists in basic malaria diagnostic refresher training and tracking performance on the job through OTSS+.

- Pilot clinical CQI program in selected health zones of Haut Katanga to improve malaria case management.
- Strengthen pre-service training on malaria case management by reviewing the pre-service curriculum to identify gaps and areas of improvement.

Key Goal

Improve access to and use 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 provide quality and effective care.

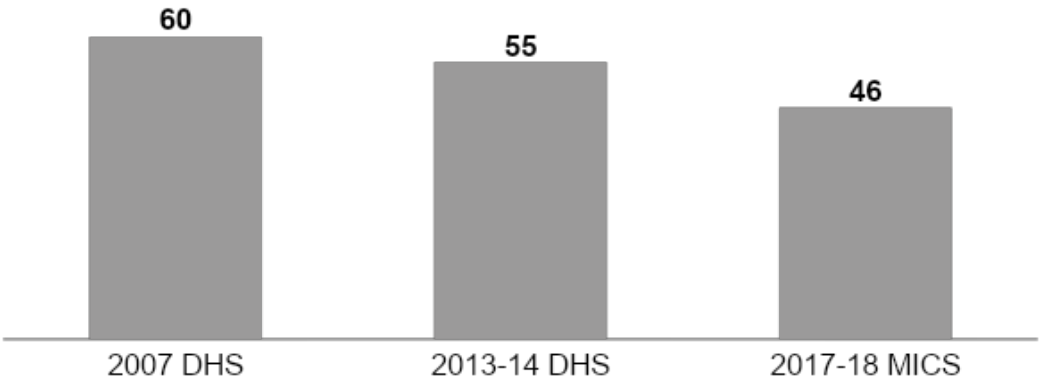
Key Question 1a

What is the status of care-seeking and/or access to care for children under five years of age with fever?

Supporting Data

Figure A-10. Trends in care-seeking for fever in children under five years of age

Among children under five years of age with fever in the two weeks before the survey, percentage for whom advice or treatment was sought



Key Question 1b

What significant structural and/or behavioral challenges affect prompt care-seeking?

Supporting Data

Based on the most recent MICS data showing that care was sought for only 46 percent of children under five years of age with fever, it is clear that uptake of care-seeking behaviors is a challenge in DRC. Structurally, lack of access to services is a fundamental challenge, particularly in remote areas. According to the National Health Development Plan (PNDS 2019–2022), only 30 percent of the population has access to health facilities. While

the community health platform is intended to close this access gap, it continues to be a challenge to maintain, let alone expand a stable CHW workforce. Based on annual reports from PMI's service delivery partner (2019 and 2020), a high CHW dropout rate (up to 24 percent) due to lack of incentives is cited as a persistent challenge. In addition to access, there are other important "supply" side factors that likely influence care-seeking, including the quality of service delivery at the facility and community level and availability of commodities. On the "demand" side, more information is needed to identify the specific behavioral intervention that may be warranted. Besides the health services access geographic barriers, the health services billing mode represents another challenge: The National policy recommends a flat-rate billing for patient health services, but the recurrent commodity stockouts lead most providers to apply the billing per act which varies across health facilities and provinces, likely to significantly affect the prompt care-seeking for a large number of the population in low-supported provinces. The MBS, which is currently underway, will provide valuable insights to guide interventions. The CQI pilot activity in Haut Katanga will also provide insights on supply-side factors at the health facility that may also need to be addressed to encourage care-seeking. Given the low rates of care-seeking per the MICS, PMI/DRC considers this a priority area for SBC funding. [Please see section 3.4 for additional information.]

Key Question 2a

What proportion of patients are being tested and appropriately treated for malaria?

Supporting Data

Figure A-11. Trends in diagnosis and treatment of children with fever

Children under five years of age with fever in the two weeks before the survey compared to children under five with fever in the two weeks before the survey who received any antimalarial

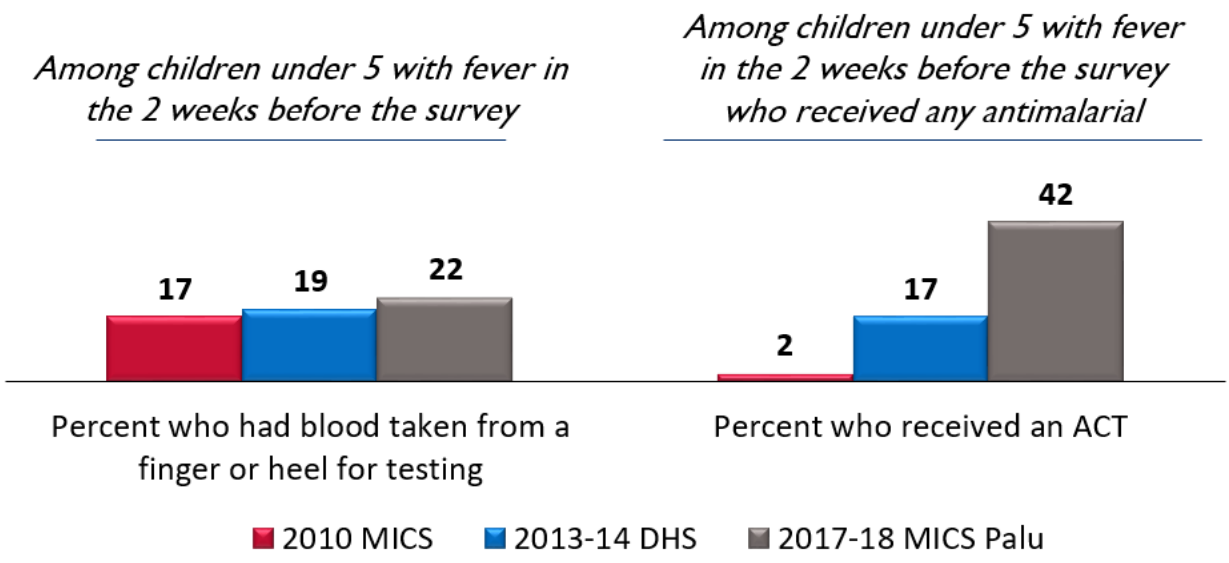
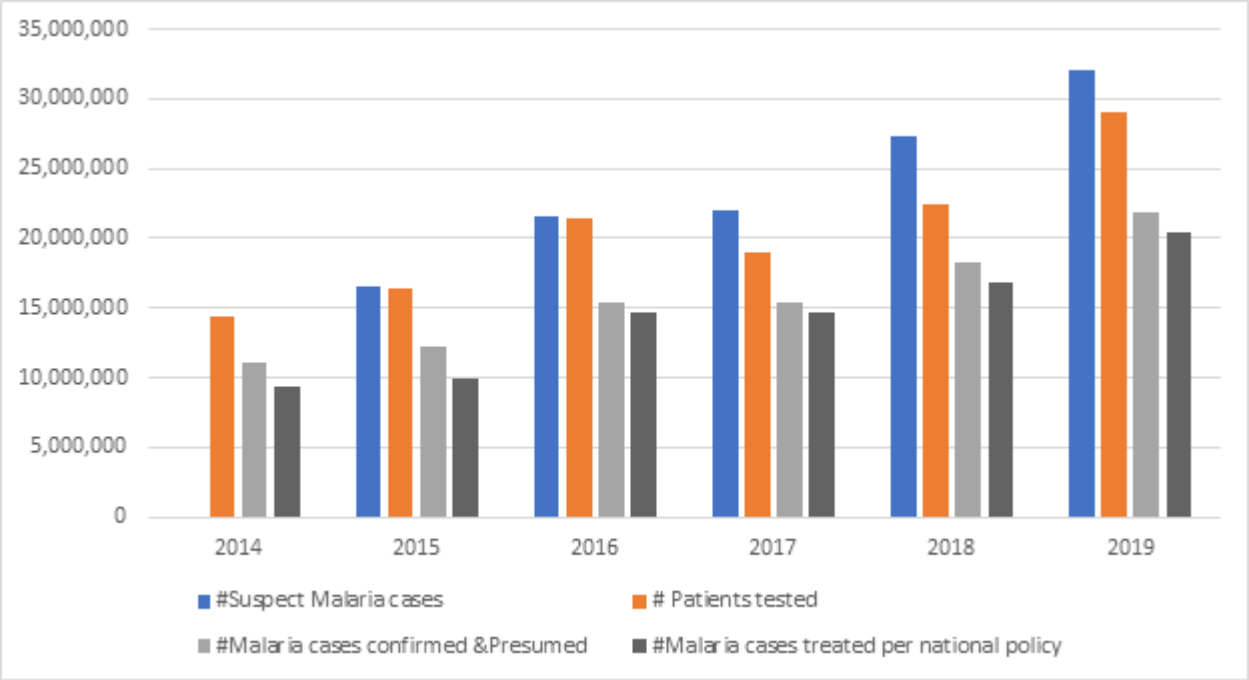


Figure A-12. Trends in malaria testing and treatment*

Trends in DRC's health facility and community-level malaria testing and treatment over time



* No data were reported on the number of suspect malaria cases in 2014.

Key Question 2b

What significant structural and behavioral challenges affect testing and treatment practices among providers?

Supporting Data

Based on the data in the figures above, health worker adherence to national guidelines for malaria testing and treatment remain a challenge in DRC. The household survey indicator for finger/heel stick among children with fever in the past two weeks serves as a rough proxy for universal diagnostic testing of suspect fever cases. While not a direct measure, a reported 22 percent indicates a potential issue with provider adherence to testing guidelines. Data showing that 42 percent of children treated for malaria received an ACT is slightly more encouraging—particularly when noting the improvement over previous survey estimates—but still indicates that a substantial proportion of children treated for malaria are not receiving an ACT. These household survey data do not specifically reflect services provided to patients receiving care in formal/public health structures. Additional data from the HMIS depicting the case management "cascade" show smaller gaps in testing suspect cases and treatment per national policy, suggesting reasonable performance. These two data points highlight a gap in our insights into the quality of service provision at the health facility and community level. PMI partner reports from 2019 and 2020 also indicate there may have been challenges in systematically disseminating the updated national case management guidelines since they were validated in 2017, leading to potential discrepancies between health worker performance and the expectations laid out by the guidelines. A Lessons Learned workshop in 2017 at the conclusion of the previous service delivery project noted resistance to change as a barrier to health worker adherence to case management guidelines. Whether this is still a relevant factor and if other factors drive nonadherence behaviors needs to be more fully explored. A new pilot activity in Haut Katanga focused on a

continuous quality improvement approach will provide new insights into facility-level factors associated with provider adherence to case management guidelines. This activity, combined with an upcoming qualitative assessment investigating factors related to health worker adherence to RDTs, will help to shape interventions to improve the quality of case management practices in health facilities. Provider adherence to testing and treatment policies is a priority area for SBC funding. [Please see section 3.4 for additional information.]

Key Question 3

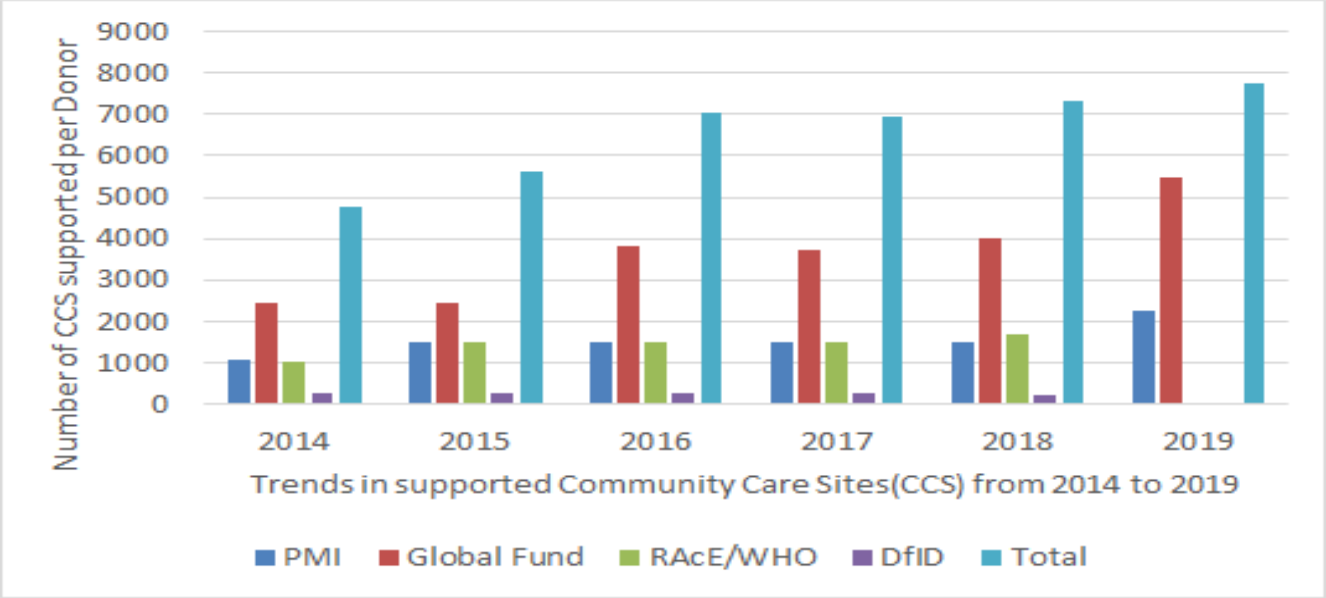
What is the current and planned support for case management at health facilities and in the communities by CHWs?

Planned activities for PMI support to case management in DRC will not change significantly from FY 2021 approved activities. PMI will continue to focus on strengthening case management in health facilities and community care sites to ensure all health zones are receiving comprehensive support, and providers are adhering to national malaria case management guidelines, expanding access to quality healthcare services through continued expansion of training and supportive supervision, and targeting the malaria case management SBC activities based on insights generated from upcoming data collection activities (qualitative study on provider RDT adherence, CQI pilot, and to some extent the MBS). PMI/DRC proposes to support the following:

- Training for 1,000 CHWs in approximately 500 new community care sites, and supportive supervision of CHWs who offer iCCM for malaria, diarrhea, and pneumonia at community care sites. These trainings include an SBC module that focuses on key family practices and covers all components of iCCM. This module was developed by the MOH with technical support from UNICEF. It has been field tested and is currently in use.
- Procuring small equipment for 1,000 new integrated community care sites, including secure storage for commodities, bikes, data collection tools, and flashlights.
- Targeting health workers in low-performing health facilities utilizing provincial level DHIS2 analysis to identify poor performing health zones and high-volume facilities and conducting triangulation using DQA data. PMI proposes training ~1,000 health workers and providing refresher training for an additional 500 health workers working in PMI-supported health facilities.
- Validating and disseminating the 2020 updated malaria case management guidelines.
- Continuing the integrated supportive supervision activity to include MIP and ITN routine distributions in addition to malaria case management activities, including the continuous clinical quality improvement with the enhanced OTSS+ model piloted in Haut-Katanga.
- Updating pre-service training curricula for malaria case management, followed by the reproduction and distribution of revised pre-service curricula, and training of instructors based on the updated version.

Supporting Data

Figure A-13. Trends in supported community care sites by donor



Despite the increasing coverage shown in the figure, only 30 percent of the population lives within five kilometers of the nearest health facility, resulting in an increasing need to establish community care sites to close the gap. To date, only 12 percent of needed community care sites in DRC are covered, representing 7,875 functioning community care sites out of 65,586 needed to reach the unreached population, most of which are living in rural areas.

For more detailed information on the geographic division of support through PMI and other donors, please refer to Table 1 in the introduction.

Key Question 4

What is the estimated need for RDTs during calendar years 2021–2023? Are there any projected RDT gaps based on anticipated partner contributions compared to estimated needs?

Supporting Data

Quantification Assumptions for RDTs

- In December 2020 DRC conducted a national quantification and the FY 2022 MOP gap analysis is based on the results from that exercise. The starting point for RDT quantification is the number of suspected cases tested using an RDT for 2019 taken from the DHIS2. This is anticipated to increase by 6 percent each year due to an increase in availability and use of services.
- The percent of fever cases tested with an RDT is 92 percent (DHIS2 2019).
- RDT needs are for the calendar year (12 months). Stock currently on hand is carried over for CY 2021 and is projected for CYs 2022 and 2023. For CY 2021 and 2022 a six-month end-of-year stock is allowed; however, due to funding concerns for CY 2023 this is reduced to four months.

- The number of RDTs planned for CY 2023 is reduced by about 900,000, which is the anticipated surplus using the assumptions from above.
- Using these assumptions there is no anticipated gap for CY 2022 and 2023; however, a desired end of year stock of six months for CY 2023 would leave a gap of about 1.9 million RDTs.

Note: 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 although transfers between donors in the event of shortages is possible).

Table A-8. RDT Gap Analysis Table

Calendar Year	2021	2022	2023
Total country population	113,050,274	116,328,732	119,702,266
Population at risk for malaria	113,050,274	116,328,732	119,702,266
PMI-targeted at-risk population	42,723,013	43,961,980	45,236,878
RDT Needs			
Total number of projected fever cases	11,109,196	11,775,748	12,482,293
Percent of fever cases tested with an RDT	92%	92%	92%
RDT Needs (tests)	**10,217,240**	**10,830,275**	**11,480,091**
Needs Estimated based on HMIS Data			
Partner Contributions (tests)			
RDTs from Government			
RDTs from Global Fund			
RDTs from other donors			
RDTs planned with PMI funding	10,784,125	12,215,486	10,584,067
Total RDT Contributions per Calendar Year	***10,784,125***	***12,215,486***	***10,584,067***
Stock Balance (tests)			
Beginning Balance	3,463,041	4,029,926	5,415,137
- Product Need	10,217,240	10,830,275	11,480,091
+ Total Contributions (received/expected)	10,784,125	12,215,486	10,584,067
Ending Balance	4,029,926	5,415,137	4,519,113
Desired End of Year Stock (months of stock)	6	6	5
Desired End of Year Stock (quantities)	5,108,620	5,415,137	4,519,113
Total Surplus (Gap)	***(1,078,695)***	***(0)***	***(0)***

Key Question 5

What is the estimated need for ACTs during calendar years 2021–2023? Are there any projected ACT gaps?

Supporting Data

Quantification Assumptions for ACTs

- In December 2020 DRC conducted a national quantification and the FY 2022 MOP gap analysis is based on the results from that exercise. The starting point for ACT quantification is the number of positive

cases for PMI provinces taken from the DHIS2. This is anticipated to increase by 6 percent each year due to an increase in availability and use of services.

- ACT needs are for the calendar year (12 months). Stock currently on hand is carried over for CY 2021 and is projected for CYs 2022 and 2023. For CY 2021 and 2022 a six-month end-of-year stock is allowed; however due to funding concerns for CY 2023 this is reduced to four months.
- The number of ACTs planned for CY 2023 is reduced by about 1.5 million, which is the anticipated surplus using the assumptions from above.
- Using these assumptions there is no anticipated gap for CY 2022 and 2023, however a desired end-of-year stock of six months for CY 2023 would leave a gap of about 1.8 million ACTs.
- DRC offers both AL and ASAQ as part of its standard treatment guidelines with AL generally being supplied to urban areas and ASAQ to rural areas, although this is only a usual practice and not a fixed policy and can be ignored if either product is in short supply. The assumption made for the supply plan will be 70 percent of treatments as ASAQ and 30 percent as AL.

Note: This gap analysis is related only to PMI-targeted provinces because in DRC each main donor has its specific target (there is no overlap between donors although transfers between donors in the event of shortages is possible).

Table A-9. ACT Gap Analysis Table

Calendar Year	2021	2022	2023
Total country population	113,050,274	116,328,732	119,702,266
Population at risk for malaria	113,050,274	116,328,732	119,702,266
PMI-targeted at-risk population	42,723,013	43,961,980	45,236,878
ACT Needs			
Total projected number of malaria cases	9,724,580	10,308,055	10,926,538
Total ACT Needs (treatments)	***9,724,580***	***10,308,055***	***10,926,538***
Needs Estimated based on HMIS Data			
Partner Contributions (treatments)			
ACTs from Government			
ACTs from Global Fund			
ACTs from other donors *[specify donor]*			
ACTs planned with PMI funding	13,373,285	8,541,150	9,414,690
Total ACTs Contributions per Calendar Year	***13,373,285***	***8,541,150***	***9,414,690***
Stock Balance (treatments)			
Beginning Balance	3,272,227	6,920,932	5,154,027
- Product Need	9,724,580	10,308,055	10,926,538
+ Total Contributions (received/expected)	13,373,285	8,541,150	9,414,690
Ending Balance	6,920,932	5,154,027	3,642,179
Desired End of Year Stock (months of stock)	6	6	4
Desired End of Year Stock (quantities)	4,862,290	5,154,027	3,642,179
Total Surplus (Gap)	***2,058,642***	***(0)***	***(0)***

Key Question 6

What is the estimated need for definitive treatment and pre-referral treatment for severe malaria during calendar years 2021–2023? Are there any anticipated gaps?

Supporting Data

Quantification Assumptions for Rectal Artesunate

- In December 2020 DRC conducted a national quantification and the FY 2022 MOP gap analysis is based on the results from that exercise. The starting point for Rectal Artesunate quantification is the projected number of severe cases for PMI provinces needing a pre-referral dose taken from the DHIS2. A weight band estimate is used to calculate the number of suppositories. This is anticipated to increase by 6 percent each year due to an increase in availability and use of services.
- Rectal artesunate needs are for the calendar year (12 months). Stock currently on hand is carried over for CY 2021 and is projected for CYs 2022 and 2023. For each CY a six-month end-of-year stock is allowed. Numbers were adjusted to ensure no surplus.
- There is no anticipated gap or surplus for CY 2022 or 2023.

Note: 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 although transfers between donors in the event of shortages is possible).

Table A-10. Inj. Art Gap Analysis Table

Calendar Year	2021	2022	2023
Injectable Artesunate Needs			
Projected number of severe cases	923,467	978,875	1,037,608
Projected number of severe cases among children 0-5y	426,642	452,240	479,375
Average number of vials required for severe cases among children 0-5y	3	3	3
Projected number of severe cases among children 6-13 y	190,234	201,648	213,747
Average number of vials required for severe cases among children 6-13 y	6	6	6
Projected number of severe cases among adults	307,515	325,965	345,523
Average number of vials required for severe cases among adults	9	9	9
Total Injectable Artesunate Needs (vials) All Ages	***5,188,961***	***5,500,299***	***5,830,317***
Needs Estimated based on HMIS Data			
Partner Contributions (vials)			
Injectable artesunate from Government			
Injectable artesunate from Global Fund			
Injectable artesunate from other donors [specify donor]			
Injectable artesunate planned with PMI funding	1,623,217	2,290,771	1,438,124
Total Injectable Artesunate Contributions per Calendar Year	***1,623,217***	***2,290,771***	***1,438,124***
Stock Balance (vials)			
Beginning Balance	1,215,689	0	0
- Product Need	5,188,961	5,500,299	5,830,317
+ Total Contributions (received/expected)	1,623,217	2,290,771	1,438,124
Ending Balance	-2,350,055	-3,209,528	-4,392,193
Desired End of Year Stock (months of stock)	6	6	6
Desired End of Year Stock (quantities)	2,594,481	2,750,149	2,915,158
Total Surplus (Gap)	***(4,944,536)***	***(5,959,677)***	***(7,307,351)***

Quantification Assumptions for Injectable Artesunate

- In December 2020 DRC conducted a national quantification and the FY 2022 MOP gap analysis is based on the results from that exercise. The starting point for Injectable Artesunate quantification is the projected number of severe cases for PMI provinces taken from the DHIS2. This is anticipated to increase by 6 percent each year due to an increase in availability and use of services.
- The number of severe cases was then broken down by age categories (0 to 5 years of age, 6 to 13 years of age, over 13 years of age) and the corresponding number of treatment vials needed (3, 6, and 9 respectively) to calculate the total need.
- The total planned supply for PMI is for the 0-5 years of age category is only due to funding constraints.
- Injectable artesunate needs are for the calendar year (12 months). Stock currently on hand is carried over for CY 2021 and is projected for CYs 2022 and 2023. For each CY a six-month end- of-year stock is allowed.

- Using these assumptions there is an anticipated gap for CY 2022 and 2023 of about 6 million and about 7.3 million vials respectively (note this is based on treatment for all ages).

Note: This gap analysis is related only to PMI-targeted provinces because in DRC each main donor has its specific target (there is no overlap between donors although transfers between donors in the event of shortages is possible).

Table A-11. RAS Gap Analysis Table

Calendar Year	2021	2022	2023
Artesunate Suppository Needs			
Number of severe cases expected to require pre-referral dose	159,187	168,738	178,862
Total Artesunate Suppository Needs (suppositories)	***201,531***	***213,622***	***226,440***
Needs Estimated based on HMIS Data			
Partner Contributions (suppositories)			
Artesunate suppositories from Government			
Artesunate suppositories from Global Fund			
Artesunate suppositories from other donors			
Artesunate suppositories planned with PMI funding	237,842	245,594	232,849
Total Artesunate Suppositories Available	***237,842***	***245,594***	***232,849***
Stock Balance (suppositories)			
Beginning Balance	38,528	74,839	106,811
- Product Need	201,531	213,622	226,440
+ Total Contributions (received/expected)	237,842	245,594	232,849
Ending Balance	74,839	106,811	113,220
Desired End of Year Stock (months of stock)	6	6	6
Desired End of Year Stock (quantities)	100,765	106,811	113,220
Total Surplus (Gap)	***(25,926)***	***(0)***	***0***

In settings where complete treatment of severe malaria is not possible but injections are possible, a single dose of intramuscular artesunate is recommended for children and adults, followed by referral to an appropriate facility for subsequent treatment. If injectable artesunate is not available, intramuscular artemether or quinine is recommended. In areas where intramuscular injections are not possible, children under six years of age should be treated with a single dose of rectal artesunate, 10 mg/kg (or one suppository of 100 mg for children up to 10 kg, or two 100 mg suppositories for children weighing up to 20 kg) and immediately be referred to an appropriate facility for subsequent care. When referral is not possible after initial treatment, the treatment should be continued until the patient can tolerate oral medication, then administer a full course of effective ACT. PMI is procuring only rectal artesunate as a pre-referral treatment for children under five years of age at the community and health center levels.

Key Question 7

What is the estimated need for any other standard antimalarial drug used in the country (e.g., primaquine for *P. vivax*) during calendar years 2021–2023? Are there any anticipated gaps?

Supporting Data

No other standard antimalarial drugs needed.

Key Question 8

Are first-line ACTs effective and monitored regularly?

Based on the 2017 Therapeutic Efficacy Study (TES), there is evidence of decreased efficacy of ACTs in certain sites in DRC. In 2020 and 2021, further evidence will continue to 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.

Supporting Data

Table A-12. Recently completed and ongoing antimalarial therapeutic efficacy studies

Most recent study year	Sites	PMI Funded (Y/N)	Treatment Arms	PCR-Corrected Efficacy>90%
2017–2018[1]	Kabondo, Kapolowe, Kimpese, Rutshuru	Y	AL, ASAQ, DP	Y
2017–2018[1]	Mikalayi	Y	AL	N
2017–2018[1]	Mikalayi	Y	ASAQ	Y
2017–2018[1]	Mikalayi	Y	DP	N

Ongoing TES: 2021 **Next Planned TES:** 2023

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

1. Pre-publication: Moriarty, L.F., Nkoli, P.M., Likwela, J.L., Mulopo, P.M., Sompwe, E.M., Rika, J.M., Mavoko, H.M., Souza, S., Jones, S., Ntamabyaliro, N.Y., Kaputu, A.K., Lucchi, N., Subramaniam, G., Niang, M., Sadou, A., Ngoyi, D.M., Tamfum, J.J.M., Schmedes, S.E., Plucinski, M.M., Chowell-Puente, G., Halsey, E.S., & Kahunu, G.M. Decreased efficacy of artemisinin-based combination therapies in Democratic Republic of the Congo and investigation of molecular markers of antimalarial resistance.

Key Question 9

Are there other areas (e.g., lab strengthening, private sector support, etc.) that should be considered for PMI support?

Supporting Data

PMI has provided support for laboratory activities in 154 health facilities from 81 health zones of the 9 PMI provinces, training of 17 trainers in malaria diagnostic refresher training, 211 lab technicians in malaria microscopy, 25 supervisors in OTSS+, 12 trainers of trainers in HNQIS, and 31 providers in HNQIS. PMI also supported production and distribution of 250 quality assurance manuals in all supported health facilities, with FY 2018 and FY 2019 funding.

PMI will continue its support to lab strengthening activities, including implementation of a quality control and quality assurance system for malaria diagnostics, and support for preparation for accreditation of laboratory technicians. PMI will also support a malaria private sector engagement activity that is part of a broader activity in three additional PMI countries to identify promising engagement opportunities with the private sector.

Conclusions for Case Management Investments

PMI will continue to provide support to DRC's Malaria Control Program utilizing a strategy similar to previous MOP years by prioritizing the strengthening of case management in health facilities and community care sites. This will involve ensuring that all health zones are receiving comprehensive support, primarily in the form of scaling up the training and supervision of healthcare workers.

Access to quality health service delivery remains an important determinant of care-seeking practices among the target population. Given the DRC's low coverage in health facilities (30 percent) and community care sites (high dropout rate and low coverage rate), distance from facilities remains an obvious barrier, and the condition and quality of available care is also an important factor. Based on recent Service Provision Assessment (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 provide treatment is a logical programmatic response. To expand access to quality healthcare services for hard-to-reach populations, PMI will continue to roll out community care sites and ensure that they are stocked with the necessary equipment and commodities, and staffed with well-trained health workers. Based on the findings from the CQI approach piloted in Haut-Katanga, PMI/DRC proposes to scale the implementation of this approach in the nine provinces in which it operates.

Please see FY 2022 PMI budget tables for a detailed list of proposed activities with FY 2022 funding.

2.2 DRUG-BASED PREVENTION

NMCP Objective

The DRC National Malaria Strategic Plan aims to protect all pregnant women from malaria in pregnancy through the provision of at least four doses of sulfadoxine-pyrimethamine (SP) over the course of a woman's pregnancy. The plan also aims to protect children 3-59 months with three to four doses of SP+amodiaquine in 26 health zones in Haut-Katanga and Lualaba with seasonal malaria chemoprevention.

NMCP Approach

- The National Malaria Chemoprevention Therapy guidelines recommend that SP-based IPTp be given to all pregnant women during ANC visits from the start of the second trimester of pregnancy (i.e., not

during the first trimester). Each woman should receive at least four doses of SP during pregnancy. Doses should be administered one month apart up until delivery as directly observed treatment at health facilities (ANC). Supportive supervision for malaria in pregnancy is integrated in the broader malaria case management using the OTSS tool.

- DRC is currently piloting community distribution of IPTp through the Transforming Intermittent Preventive Treatment for Optimal Pregnancy (TIPTOP) project in three health zones (Kenge, Bulungu, and Kunda). Results from the pilot will be shared in June with the expectation that findings will inform decisions about possible scale-up in other parts of the country. The health zones of the 10 high-burden high-impact provinces will be prioritized for any scale-up.
- The DRC's National Malaria Strategic Plan 2020–2023 envisions implementing SMC in 18 health zones in Haut-Katanga and eight health zones in Lualaba where malaria transmission is seasonal with a short rainy season lasting four months (October–January). An assessment will be carried out to identify eligible health zones for SMC and Intermittent Preventive Treatment of Infants (IPTi) according to WHO criteria. The SMC pilot will be funded by the Global Fund.
- The national malaria case management guidelines also recommend SP, atovaquone-proguanil or doxycycline as chemoprophylaxis for migrants at risk who are in the country for a short stay, not exceeding three months. Guidelines also recommend chemoprophylaxis with cotrimoxazole for immunocompromised people with HIV.

PMI Objective in Support of NMCP

PMI supports DRC's malaria in pregnancy strategy through procurement of SP and directly observed treatment kits for IPTp, training and supportive supervision of health service providers in IPTp (and appropriate case management for malaria in pregnancy). PMI also supports SBC to promote ANC attendance and IPTp uptake. PMI does not currently support community-based IPTp, though it is anticipating results from the TIPTOP project to assess opportunities to support scale-up. PMI does not currently support SMC or IPTi pilots.

PMI-Supported Recent Progress (FY 2019 funded activities)

The following activities were supported by PMI with FY 2019 funds:

- Procurement of 1,295,333 SP treatments for PMI-supported health zones.
- NMCP training of 2,376 health service providers in IPTp.
- Provision of SP to 959,251 pregnant women; provision of directly observed treatment kits for SP to 292 health facilities.
- Increased engagement with community structures such as village outreach committees, health area development committees, and CHWs to inform elements of the VIVA! campaign, which focuses on maternal health behaviors including ANC attendance. Initial engagements have focused on capacity-building of community stakeholders to strengthen the linkage between communities and health structures.

The direct payment issue for provincial health zones' management team staff, and nurses in charge of health centers for supportive supervision implementation was a major bottleneck for the MIP activities implementation. PMI's service delivery partner was logistically constrained in its ability to pay these fees on-site, which had a negative impact on the frequency with which supervision and monthly monitoring was conducted over the past

year. PMI is looking into alternate payment approaches, including mobile money transfer, pending risk mitigation analysis.

PMI-Supported Planned Activities (FY 2020 funded activities)

The following activities will be supported by PMI with FY 2020 funds:

- Training and supportive supervision for 1,294 facility-based healthcare providers on malaria in pregnancy and IPTp.
- Procuring 4,290,247 SP treatments.
- Providing 653 directly observed treatment kits for SP.
- Studying to understand gaps between high ANC attendance rates and low IPTp uptake rates.
- Supporting the validation and dissemination of the 2020 revised treatment guidelines for malaria in pregnancy.
- Providing SBC activities at the health zone and community levels promoting ANC and IPTp, including continued engagement with community-based structures and organizations to promote ANC attendance and prevention of malaria in pregnancy more generally. A specific strategy will be to engage religious leaders (imams, priests, and pastors) as community change agents to engage more meaningfully in community-level interventions for maternal and child health issues (including ANC attendance, IPTp uptake, and prompt care for fever).

PMI proposes to scale the community IPTp approach, piloted by TIPTOP in three health zones (Kenge, Bulungu, and Kunda), in other PMI-supported health zones. Specific decisions regarding this scale-up will be informed by the upcoming workshop to review TIPTOP findings, during which WHO may further articulate specific guidance for community IPTp.

Please see FY 2022 MOP budget tables for a detailed list of proposed activities with FY 2022 funding.

2.2.1 MALARIA IN PREGNANCY (MIP)

Key Goal

Support the national strategy for MIP, which includes provision of ITNs at the first ANC visit, a minimum of four doses of IPTp in all supported provinces starting at 13 weeks gestational age, and effective case management of malaria per WHO guidelines.

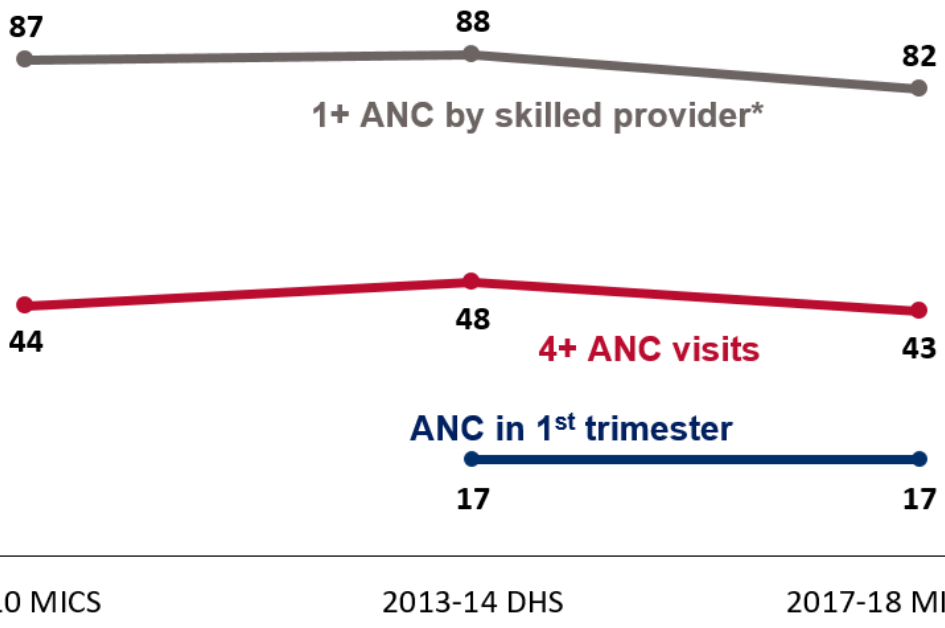
Key Question 1a

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

Supporting Data

Figure A-14. Trends in ANC coverage

Women 15 to 49 years of age with a live birth in the five years before the survey (most recent birth)



**Skilled provider includes doctor, nurse, or midwife (accoucheuse).*

Key Question 1b

Are there important health system and/or behavioral barriers to ANC attendance at health facilities?

Supporting Data

The most recent MICS data show that a fairly high proportion of pregnant women attend ANC at least one time (82 percent), though it is concerning that this figure has decreased from 88 percent since the last household survey data point. More problematic is the proportion of pregnant women who make repeat visits for subsequent ANC visits. Only 43 percent of women attended at least four ANC visits, which has also decreased from 48 percent since the last data point. The problem behavior for IPTp uptake (or at least part of the problem) appears to be late initiation of ANC and lack of return visits (either due to late initiation or deprioritization of repeat visits). Only 17 percent of women attended ANC in their first trimester (2013–2014 DHS and 2017–2018 MICS). Structurally, lack of access to services is a fundamental challenge, particularly in remote areas. According to the National Health Development Plan (PNDS 2019–2022), only 30 percent of the population has access to health facilities. The last SPA (2017–2018) provides additional context regarding availability of ANC services: 19 percent of health facilities offer ANC services less than four times per month, 54 percent offer ANC one or two days per week, and 27 percent offer ANC at least three times per week. Operational hours for ANC clinics are also typically restricted to specific windows. In addition to structural/access challenges, we know that education is a factor related to ANC attendance. According to the most recent MICS, pregnant women with at least secondary education attended more ANC visits (89 percent ANC1, 51 percent ANC4) than those with no

formal education (73 percent ANC1, 35 percent ANC4). An earlier study from 2011 found that late initiation of ANC was associated with financial barriers, absence of problems with the pregnancy, rural residence, and multiparity.[12]

With respect to national policy, the NMCP has begun the scale-up of the 2016 WHO guidance for IPTp which recommends a first dose at the 13th week and the next doses given at one-month intervals.

The MBS (data collection underway at the time of MOP development) will provide more comprehensive and current insights into determinants of early and regular ANC attendance. The DRC team also anticipates that expansion of community IPTp may help to address some of the access barriers that seem to influence IPTp uptake. Results of the TIPTOP pilot (available in June 2021) will help to inform whether scale-up of this intervention is a viable way to improve IPTp uptake while still encouraging ANC attendance for other needed services. PMI/DRC considers this a priority area for SBC funding. [Please see Section 3.4 for additional information on how SBC interventions will be directed to address the challenges identified above.]

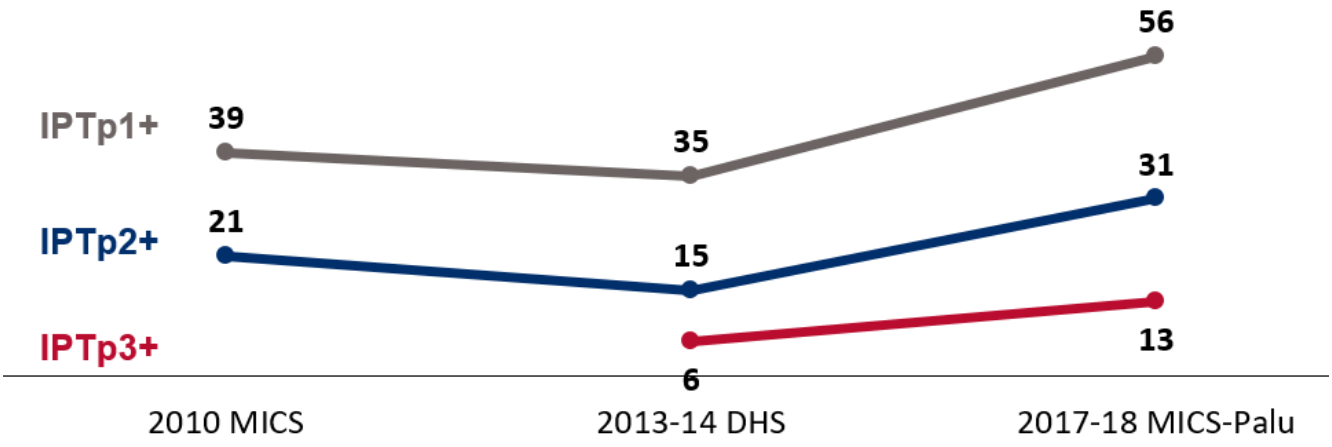
Key Question 2

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

Supporting Data

Figure A-15. Trends in IPTp

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

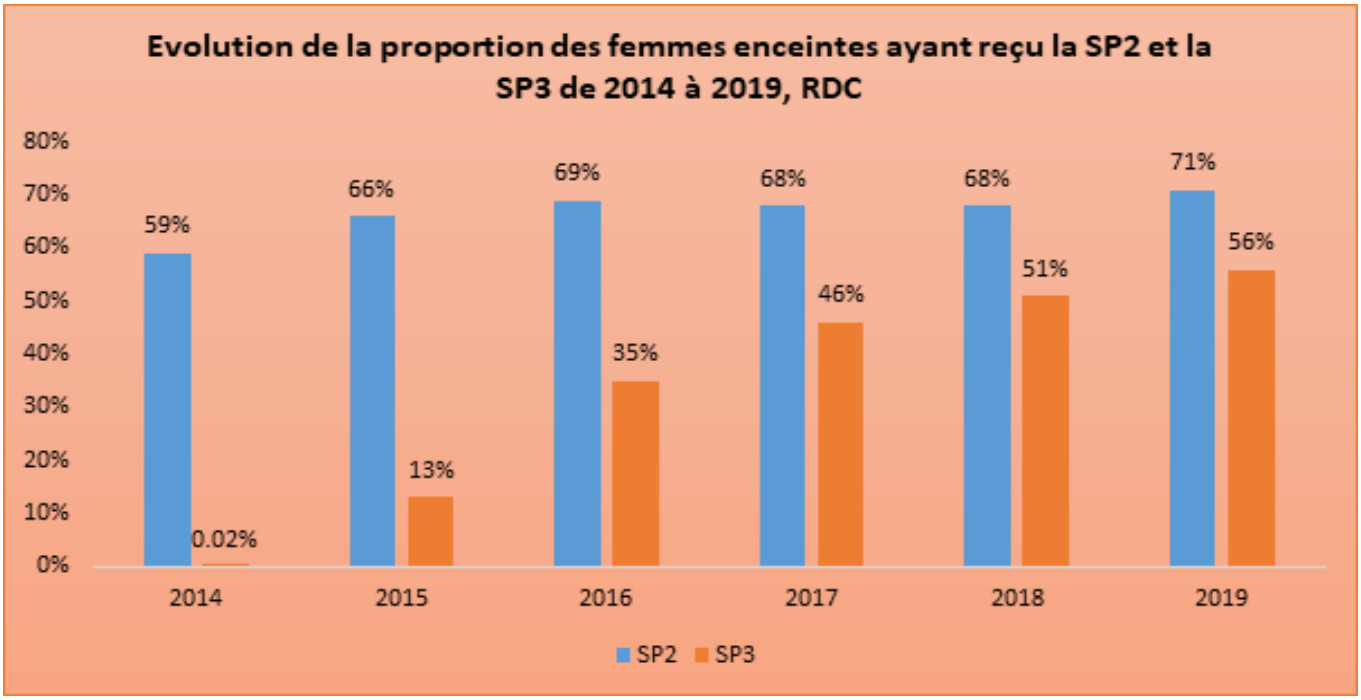


Note that these indicators have been recalculated according to the newest definition, at least the specified number of doses of SP/Fansidar from any source, wherever possible.

Note: IPTp3 baseline uses the first survey available after the recommendation was updated to three or more doses.

[12] Mafuta & Kayembe, 2011. Late antenatal care attendance, main determinants, in health zones of Katanga and Equateur, DRC.

Figure A-16. Proportion trends of pregnant women who received SP2 and SP3 from 2014 to 2019



Data source: NMCP 2019 Annual Report.

Health facility service statistics (e.g., routine HMIS data) suggest a slightly more optimistic perspective on IPTp coverage with higher coverage levels than what the household survey data suggest and improvements from 2018 to 2019. On average in DRC, 71 percent of pregnant women who attended ANC1 received IPTp2 in 2019, compared with 68 percent in 2018. In 2019, 56 percent of pregnant women who attended ANC1 received IPTp3 compared with 51 percent in 2018. Only nine provinces (Tshopo, Nord Ubangi, Tshuapa, Sud Ubangi, Mongala, Maindombe, Kwango, Kasai Central, and Equateur) reached the national target of 60 percent IPTp3 coverage. The lowest proportion was found in the provinces of Kinshasa and Haut-Katanga.

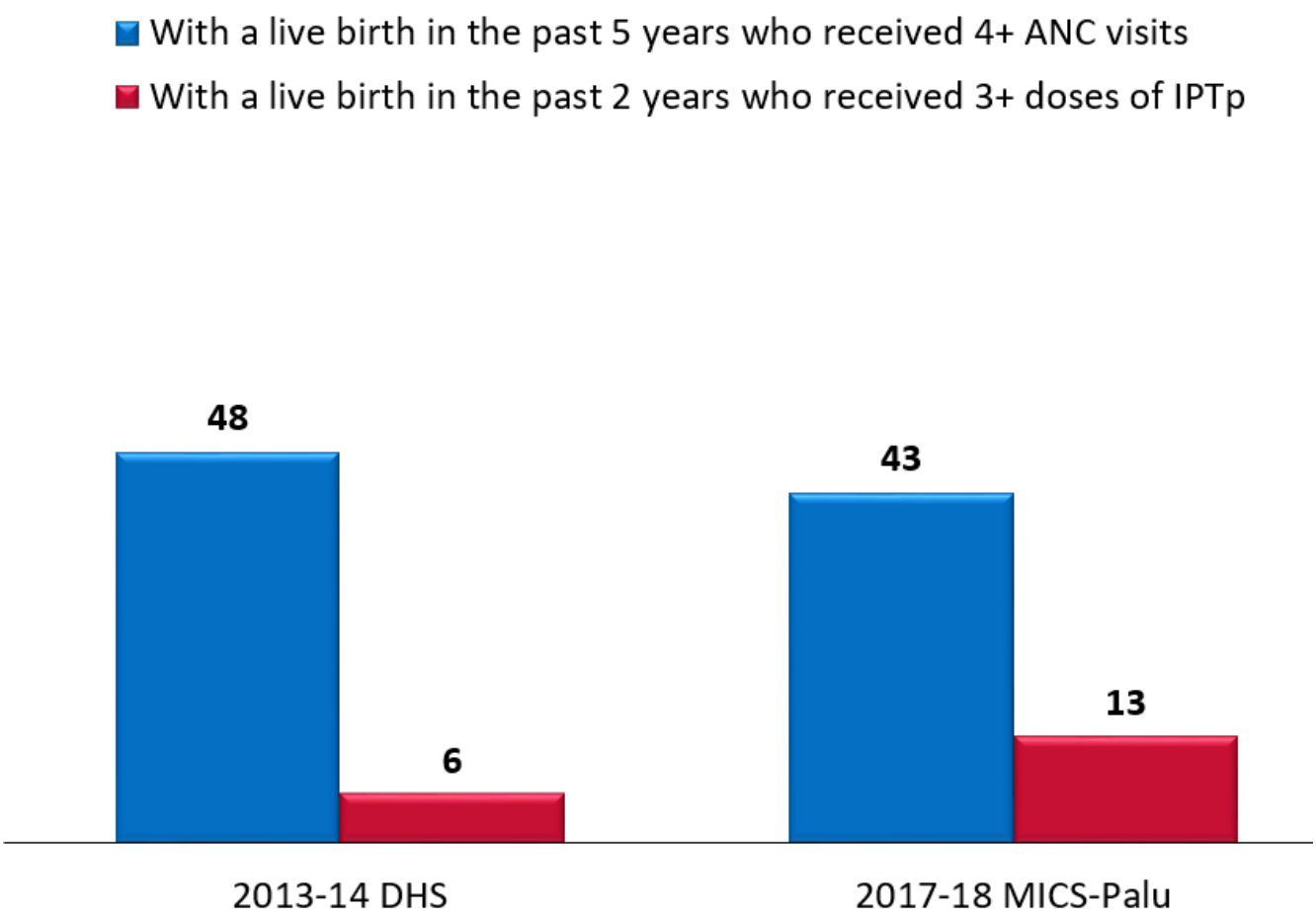
Key Question 3a

What is the gap between ANC attendance and IPTp uptake (i.e., missed opportunities for giving IPTp at ANC)?

Supporting Data

Figure A-17. Trends in missed opportunities for IPTp

Percentage of women 15 to 49 years of age



Key Question 3b

What significant health system and/or behavioral challenges affect provider delivery of MIP services (e.g., IPTp and ITN distribution at ANC)?

Supporting Data

The household survey data included above highlight a clear gap between ANC attendance and uptake (or provision) of IPTp. In short, these data points indicate that missed opportunities for ANC providers to administer IPTp to eligible pregnant women are a contributor to low IPTp uptake in DRC. While the gap narrows slightly between the two household survey data points, it is still a substantial service delivery problem. Lack of availability of SP may be an issue impacting provision of IPTp. The 2017–2018 SPA showed that only 74 percent of facilities offering ANC had SP available on the day of the data collection team visit. Another relevant issue is training. According to the SPA, only 17 percent of ANC providers had received in-service training on IPTp in the last two years. Less than half of ANC providers had ever received training on IPTp. Aside from access to SP and training on when/how to correctly administer it, there may be other important social or individual factors influencing

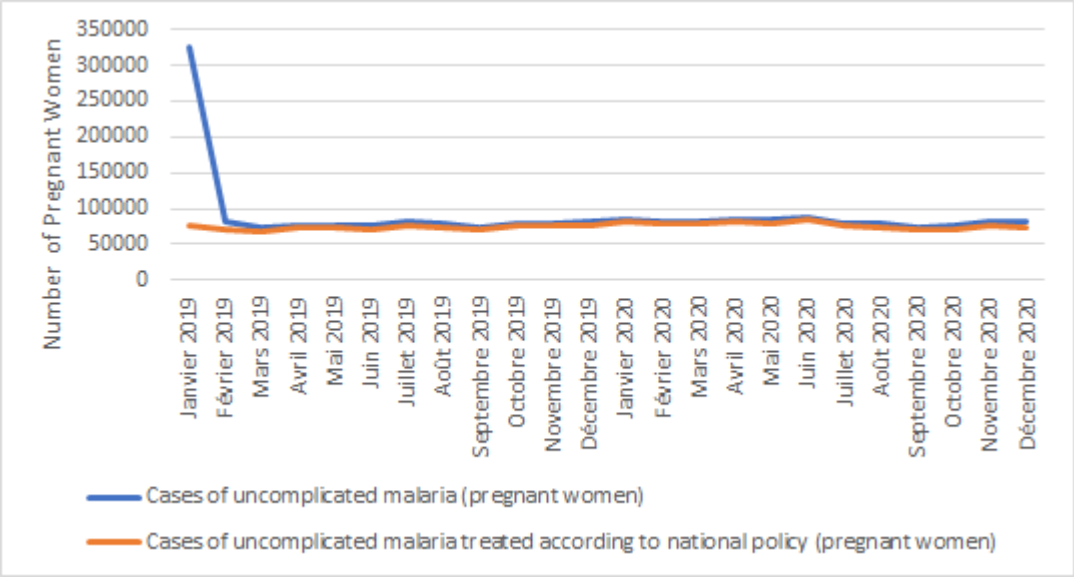
ANC provider behavior related to administration of IPTp. PMI/DRC recognized this knowledge gap during the previous MOP development cycle and is currently supporting a study designed to assess this very issue: factors influencing missed opportunities at ANC to provide IPTp to eligible pregnant women. Results should be available in the coming months to inform the design/implementation of behavior change interventions to improve IPTp uptake. PMI/DRC considers this a priority area for SBC funding. (Please see Section 3.4 for additional information on how SBC interventions will be directed to address the challenges identified above.)

Key Question 4

Does the national ANC program or health information system collect data and track the proportion of pregnant women with fever, those tested for malaria, those found to have malaria infection, and those who are treated?

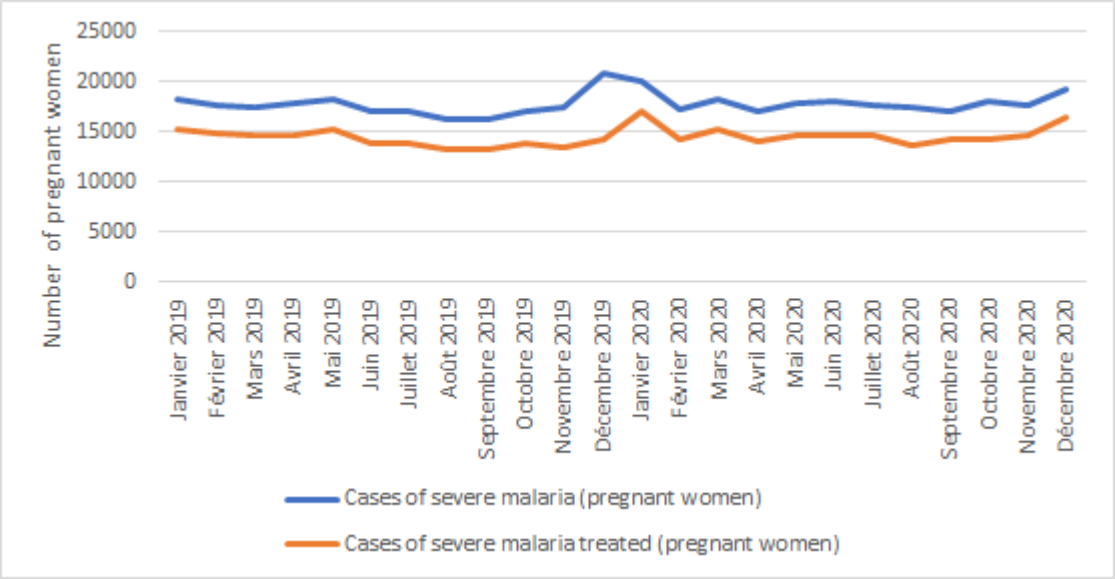
Supporting Data

Figure A-18. Number of pregnant women with uncomplicated malaria and number treated



Data source: DHIS2.

Figure A-19. Number of pregnant women with severe malaria and number treated



Source: DHIS2.

The DRC HMIS does track data on the number of pregnant women reported with confirmed uncomplicated and severe malaria. It also tracks service statistics to assess whether they are treated according to national guidelines. The large number of cases of uncomplicated malaria seen in pregnant women in January 2019 is most likely a data entry error or other data quality problem and probably does not represent a real surge in malaria cases in pregnant women that month. DHIS2 data quality errors are common, and PMI/DRC continues to work with the NMCP and *Division du Système National d'Information Sanitaire* (DSNIS) to improve data quality.

Key Question 5

What is the estimated need for SP during 2021–2023? Are there any anticipated SP gaps? Are there gaps in other IPTp commodities?

Supporting Data

Quantification Assumptions for Sulfadoxine-Pyrimethamine

- In December 2020 DRC conducted a national quantification and the FY 2022 MOP gap analysis is based on the results from that exercise. The starting point for Sulfadoxine-Pyrimethamine quantification is the number of pregnant women in PMI intervention provinces, estimated at 4 percent of population.
- ANC attendance (1, 2, 3, and 4) is taken from the DHIS2 for 2019.
- SP needs are for the calendar year (12 months). Stock currently on hand is carried over for CY 2021 and is projected for CYs 2022 and 2023. For CYs 2021 and 2022 a six-month end-of-year stock is allowed, while for 2023 due to funding constraints this is reduced to four months. The total to be purchased in 2023 is reduced to ensure no surplus at the end of the year.
- Using these assumptions there is no gap (or surplus) for CY 2022 and 2023 with a negligible surplus in 2021.

Note: This gap analysis is related only to PMI-targeted provinces because in DRC each main donor has its specific target (there is no overlap between donors although transfers between donors in the event of shortages is possible).

Table A-13. SP Gap Analysis Table

Calendar Year	2021	2022	2023
Total Country Population	113,050,274	116,328,732	119,702,266
Total Population at Risk for Malaria	113,050,274	116,328,732	119,702,266
PMI Targeted at Risk Population	42,723,013	43,961,980	45,236,878
SP Needs			
Total Number of Pregnant Women	1708921	1758479	1809475
Proportion of women expected to attend ANC1 at 13 weeks or greater	91%	91%	91%
Proportion of women expected to attend ANC2	76%	76%	76%
Proportion of women expected to attend ANC3	62%	62%	62%
Proportion of women expected to attend ANC4	53%	53%	53%
Total SP Needs (treatments)	***4,834,947***	***4,975,161***	***5,119,440***
Needs Estimated based on HMIS Data			
Partner Contributions (treatments)			
SP from Government	0	0	0
SP from Global Fund			
SP from Other Donors			
SP planned with PMI funding	7,331,450	4,964,238	4,266,200
Total SP Contributions per Calendar Year	***7,331,450***	***4,964,238***	***4,266,200***
Stock Balance (treatments)			
Beginning balance	2,000	2,498,503	2,487,580
- Product Need	4,834,947	4,975,161	5,119,440
+ Total Contributions (Received/expected)	7,331,450	4,964,238	4,266,200
Ending Balance	2,498,503	2,487,580	1,634,340
Desired End of Year Stock (months of stock)	6	6	4
Desired End of Year Stock (quantities)	2,417,474	2,487,580	1,706,480
Total Surplus (Gap)	***81,029***	***(0)***	***(72,140)***

Conclusions for MIP Investments

PMI/DRC will continue to support MIP activities with a similar package of interventions supported in previous MOPs. These activities include training and supportive supervision for ANC providers, procurement of SP for IPTp, as well as consumables to facilitate provision of IPTp as directly observed therapy (water containers, cups). The hope is that procuring additional buffer stock of SP will address previous challenges in maintaining adequate SP supplies, which may pose a barrier to IPTp uptake. PMI will continue to support SBC interventions focused on promoting early and regular ANC, as well as ANC provider behaviors to address missed opportunities to provide IPTp for eligible pregnant women at ANC. Current data collection activities, including the MBS and the ANC/IPTp study, will provide important insights to shape these interventions. One new MIP activity proposed in

this MOP is implementation of community IPTp. PMI/DRC will refine its approach to implementation of community IPTp based on findings from the DRC TIPTOP study for which results will be shared in the coming months; any updated WHO guidance on community IPTp will be taken into account as the team confers with the NMCP and partners on how to roll out coverage of this intervention. Given access issues for pregnant women to receive IPTp (distance, cost), the PMI/DRC team feels community IPTp is a viable approach to address these barriers.

Please see FY 2022 MOP budget tables for a detailed list of proposed activities with FY 2022 funding.

2.2.2 SEASONAL MALARIA CHEMOPREVENTION (SMC)

The DRC's National Malaria Strategic Plan 2020–2023 envisions implementing SMC in 18 health zones in Haut-Katanga and eight other health zones in Lualaba where malaria transmission is seasonal with a short rainy season lasting four months. Although these are PMI provinces, PMI/DRC is not supporting SMC activities and currently no other donors have committed financial support.

2.2.3 ADDITIONAL DRUG-BASED PREVENTIVE STRATEGIES

This country is not a designated country for near-term pre-elimination or elimination and there is no PMI support planned for such work in DRC.

3. CROSS-CUTTING AND OTHER HEALTH SYSTEMS

3.1 SUPPLY CHAIN

NMCP Objective

The DRC 2020–23 National Malaria Strategic Plan includes strengthening the malaria supply chain system and ensuring availability of antimalarial medicines and commodities in health facilities. Antimalarial commodity availability at all levels of the DRC health system is essential to allow healthcare providers to diagnose and appropriately treat malaria. PMI acknowledges the importance of the availability of high-quality commodities to continue the scale-up of proven malaria control interventions.

NMCP Approach

The DRC's supply chain system works through a series of regional independent private, nonprofit warehouses with whom donors typically contract for storage and distribution services. These *Centrales de Distribution Regionale* (CDRs) typically deliver to the health zone level. There is no central level warehouse for public sector health commodities that supplies these CDRs; donor-funded commodities are delivered directly to CDRs. In addition to ensuring the availability of high-quality antimalarial medicines and related products across all levels of the health system, the DRC 2020–23 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 (eLMIS).

With donors procuring all antimalarial medicines and related products, except quinine, 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 stockouts.

PMI Objective in Support of NMCP

PMI/DRC continues to support the country's supply chain strategy by working through the national supply chain system and storage and distribution channels (regional warehouses, health zones, health facilities). Based on the geographic rationalization that was negotiated between the DRC MOH, PMI, and the Global Fund, PMI is supporting supply chain activities and systems strengthening in the nine PMI-supported provinces. In PMI supported provinces, the USAID/DRC integrated health service delivery project supports delivery of malaria products from the health zones to health facilities and community care sites. In response to challenges identified, this project, together with USAID supply chain TA project, is piloting direct delivery from CDRs in FY 2021 with a view to developing a sustainable delivery system.

PMI-Supported Recent Progress (FY 2019 funded activities)

- Ordered approximately six months of buffer stock of SP, RDTs, and ACTs in an effort to prevent the chronic malaria commodity stockout challenges experienced in PMI-supported provinces in recent years.
- Supported national quantification exercise in late 2020 under PNAM leadership to promote country ownership of this process and ensure consistency of assumptions and process across all provinces regardless of donor.
- Due to COVID-19 disruptions and travel restrictions only one EUV was conducted, jointly with the Global Fund in the past 12 months (in September 2020).
- Supported national and provincial procurement and supply chain management TWGs (quarterly meetings).
- Completed the rollout of InfoMed LMIS, training of supply chain focal points in PMI provinces, and training of trainers for provincial supply chain focal points in Global Fund provinces.
- Continued progress on the warehouse in a box activity, including:
    - Environmental assessment report submission and approval and site cleaning and preparation
    - USAID 611(e) certificate memo approval
    - Subcontract contract award
    - Supplemental Environmental Monitoring and Mitigation Plan approval by Mission Environmental Officer
    - Detailed implementation and design plans received and under review
- Conducted CDR storage and distribution annual performance reviews to improve commodity storage conditions, distribution services, and commodity availability. This meeting also included a learning agenda for CDRs to share best practices and experiences.
- Conceived and started last mile distribution pilot in September–October 2020.
- Instituted biweekly meetings with all USAID-funded partners involved in the supply chain. While challenges remain, this has improved coordination and collaboration between these partners for better service delivery, commodity availability, and visibility in PMI-supported provinces.
- Conducted a training of trainers between October and December 2020 where 284 people from the central level and all 26 provinces were trained on quantification preparation and support of the national quantification exercise conducted in December 2020.

- In August 2020, 64 people from Kinshasa and the provincial level were trained on InfoMed.

PMI-Supported Planned Activities (FY 2020 funded activities)

- Conduct EUV twice a year jointly with the Global Fund.
- Conduct a national supply chain assessment and inform the new strategy and budgeted action plan with support from PMI, Maternal and Child Health, Family Planning, Global Fund, Enabel, and the EU.
- Support quarterly procurement and supply management TWG meetings at national and provincial levels.
- Establish logistics management units at the national and provincial levels to improve LMIS (InfoMed) data reporting completeness, timeliness, and data quality.
- Transition InfoMed administration to PNAM.
- Contribute to the long-term human resource for supply chain management (HR4SCM) interventions in collaboration with the Global Fund and other donors.
    - Support for supply chain bachelor's and master's degree program at the University of Kinshasa School of Public Health.
    - Continue support to the national professional association of logisticians and supply chain professionals.
    - Human resources for supply chain management assessment to inform an action plan to strengthen supply chain human resources.
- Continue last mile distribution pilot in five health zones in Lualaba and Haut Katanga.
- Continue CDR performance review and learning agenda to strengthen the quality of storage and distribution services provided by CDRs.
- Coordinate with CDRs and IHP to identify strategies to improve pharmaceutical management actions at the health zone and lower levels.
- Provide training on antimalarial medicines and product quantification, targeting health zone central office staff and health facility personnel.
- Provide formative supervision to the provincial, health zone, and health facility levels.
- WIB installation is expected to be completed by the end of 2021.
- Conduct post-marketing surveillance and strengthening of the national quality assurance laboratory on antimalarial medicines quality assurance.

Key Goal

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

Key Question 1

Has the central level, (or subcentral level, if appropriate) been stocked according to plan for ACTs, RDTs, SP, and Inj. AS. over the last year (2020)? If not, have they been under, over, or stocked out?

Over the past 12 months ACTs, and injectable artesunate stocks at the regional warehouses (central) level have been lower than preferred and fell below the minimum stock level midway through the year. CDRs began to run low of stock in July–September and subsequently health zones and health facilities began to experience ACT stockouts in September and October 2020. Global Fund was in a similar situation and did not have sufficient stocks to be able to loan PMI any ACTs. PMI and Global Fund ACT orders arrived in early December and were

quickly dispatched to CDRs. Distributions from CDR to health zones and then on to the facility level proceeded in February 2021. Malaria RDTs and SP were within the minimum and maximum stock level window for much of the past 12 months, though they tended to be lower than preferred and SP stocks dropped below the minimum in late 2020. Many of these challenges were due to a number of factors including insufficient funding for commodity orders in the FY2018 and FY2019 MOPs, the extraordinarily long malaria product procurement cycle time for DRC, and the production and shipping delays experienced in 2020 due to the global COVID-19 pandemic. The functionality of the DRC supply chain system remains unpredictable, which is complicated by the cost and distances to transport commodities, lack of appropriate infrastructure (road networks, warehousing, nascent LMIS, etc.), lead time challenges, and the complex customs clearing procedures. The USAID/DRC supply chain team has made strides to streamline the customs clearance process and shorten the time it takes to complete this process. The USAID/DRC supply chain team will work with its procurement partner to build on the existing supply chain tracking efforts and establish an online system, based on DHIS2, to monitor the customs clearance process and flag issues for action (early warning system).

PMI is supporting the build-up of a six-month buffer stock of SP, RDTs, and ACTs to avoid future stockouts of these products. Based on the annual quantified need of Inj. AS and the annual PMI/DRC budget, PMI is unable to fully fill the Inj. AS needs and will not be building up a six-month buffer stock for this product.

Key Question 2

What are the trends in service delivery point stockout rates for ACTs (including ability to treat), RDTs, Inj. AS, and SP over the last year? Is there a seasonal or geographic difference in stockout rates?

In early FY 2020 stockout rates at service delivery point were around 20 percent to 30 percent across all antimalarial product categories. As the stock levels at health facilities, health zones, and CDRs dwindled and FY 2019 MOP order deliveries were delayed due to COVID-19 the stockout rates increased. SP and ACTs were delivered to the port of entry in late 2020 and distributed to health zones and facilities in early 2021, so we should see a decline in stockout rates in early 2021. In August 2020, based on the challenges in ensuring an uninterrupted supply of antimalarial commodities and the impact of the COVID-19 pandemic on existing PMI orders, the DRC team decided to reprogram FY 2020 funds to purchase a six-month buffer stock of SP, RDTs, and ACTs. The PMI/DRC team is optimistic that this and a commitment to keep that buffer stock in place will contribute to a more stable supply of these key malaria commodities in PMI-supported provinces.

DRC offers both AL and ASAQ as part of its standard treatment guidelines. Generally, AL is supplied to urban areas and ASAQ to rural areas, although this is only a usual practice and not a fixed policy and can be ignored if either product is in short supply. Antimalarial products across the regional warehouses in PMI-supported provinces are monitored and redistributed when needed to also mitigate stockouts.

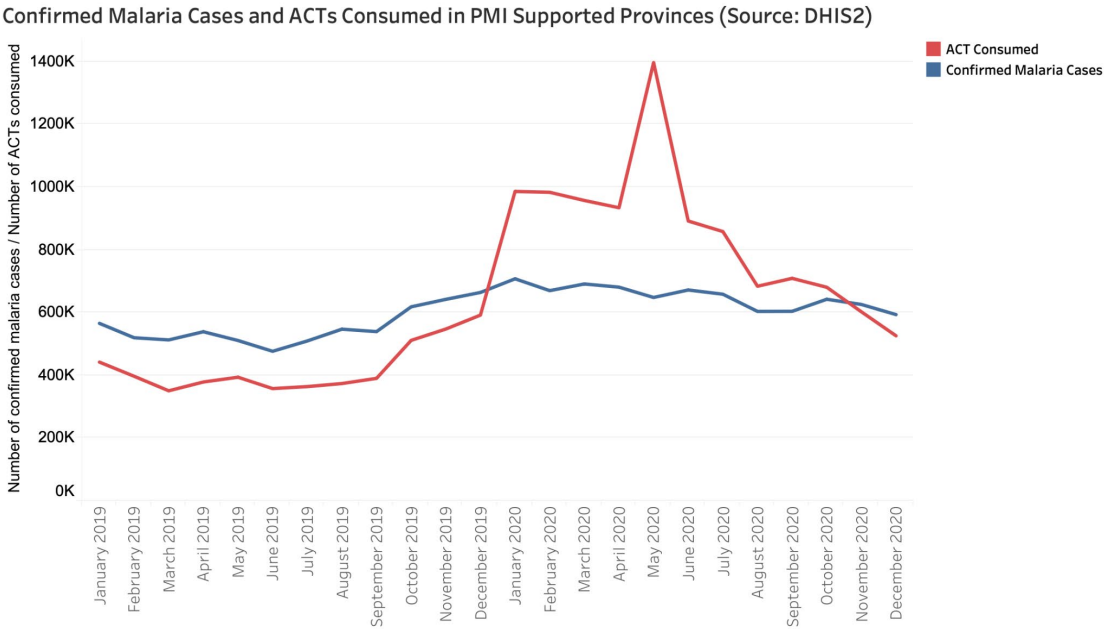
While the DRC supply chain system gets these essential life-saving medicines out to the most rural health facilities and community care sites, distribution within DRC from the port of entry down to the end beneficiary is quite costly and challenging. Some health zones and health areas are unreachable for ~six months of the year due to the rainy season. PMI is recommending to supply this subset of health zones and areas with six months of stock to mitigate stockouts during this period of inaccessibility. Additional stocks would be held at the health zone level to avoid over burdening the health facility medicines storage.

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?

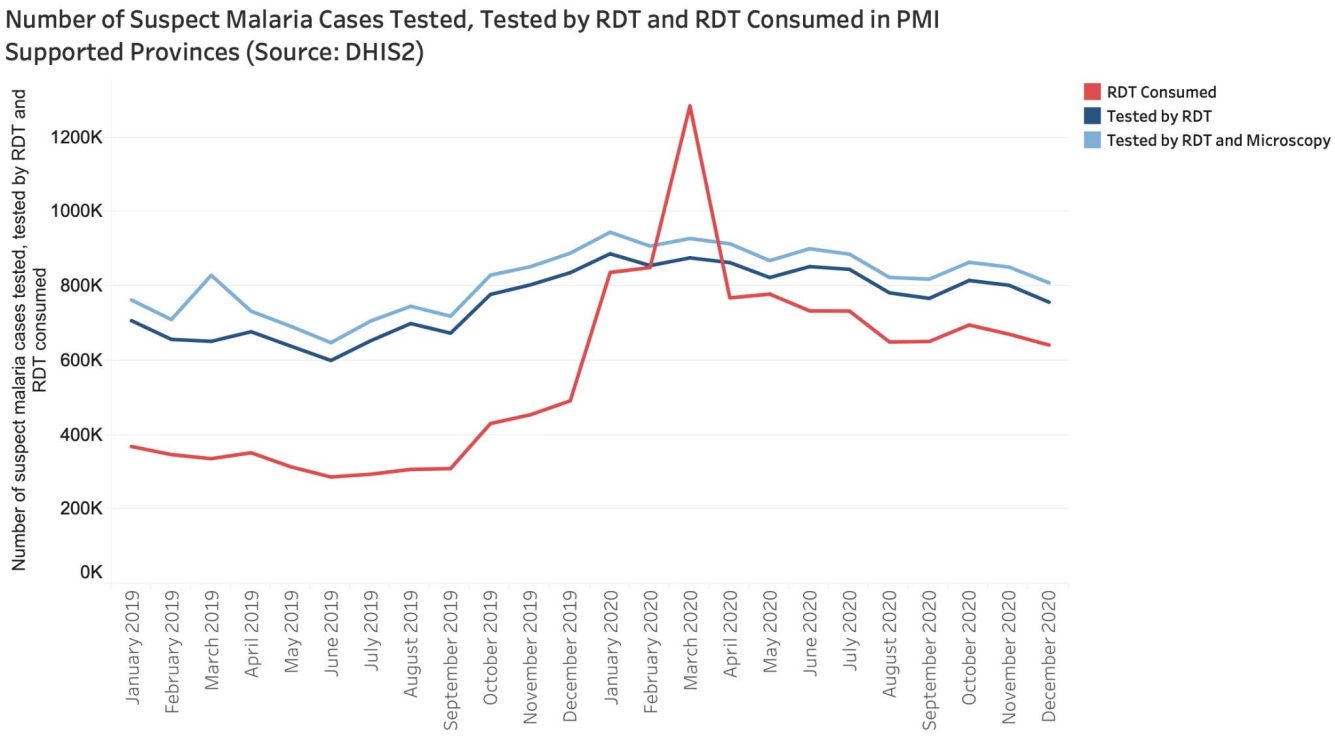
Supporting Data

Figure A-20. Malaria cases and ACTs consumed



In DRC, for most of 2019 ACT consumption follows a similar curve as confirmed malaria cases but there is a differential of ~100,000 between the lines, with fewer ACTs consumed than confirmed malaria cases. ACT stockouts in service delivery points could be contributing to this difference. For much of 2020 the number of ACTs consumed is much higher than the number of confirmed malaria cases. RDT stockouts in 2020 were low throughout 2020 so this is unlikely due to presumptive treatment of unconfirmed cases. In-depth review of these data across provinces shows that this phenomenon is likely linked to incomplete reporting and poor data quality on this newer data element in DHIS2, resulting in many data gaps and extreme outliers which grossly inflate the values. In late 2020 when service delivery points began to run out of ACTs we see that the ACT consumption drops and goes below the confirmed malaria cases, which is not surprising. An additional factor is that the reporting forms were updated at the beginning of 2019, this also likely led to some facilities not reporting certain data elements (ACT consumption, RDT consumption, etc.) in 2019, but began reporting on these data elements in 2020. Facilities that are late adapters of new forms also commonly have more data quality errors which may account for why there are more extreme outliers linked to data quality in 2020.

Figure A-21. RDTs consumed and number of patients tested for malaria



In DRC, data from PMI-supported provinces show that close to 95 percent of those tested for malaria are tested using RDTs. In-depth RDT consumption data review shows a lot of data quality issues, similar to what was seen with ACT consumption issues. Similar to the ACT consumption issues, incomplete reporting and poor data quality on this newer data element in DHIS2, has resulted in many data gaps and extreme outliers that grossly inflate the values.

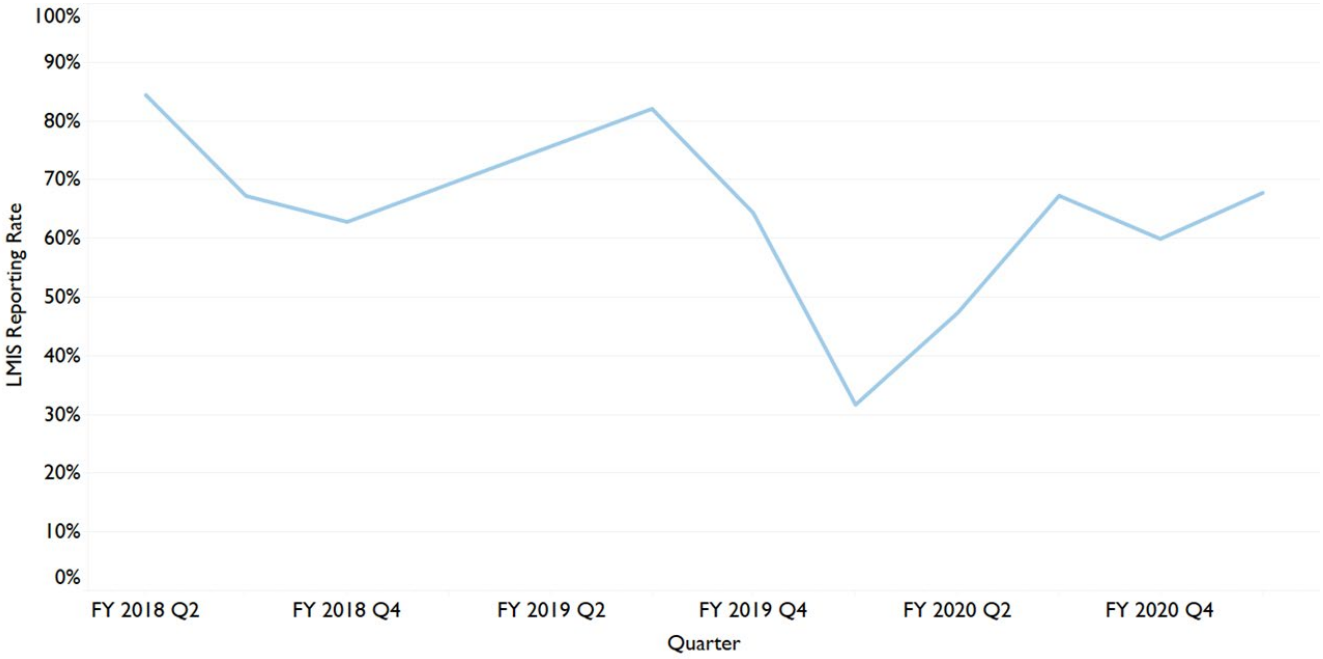
Commodity consumption data have been recently added to DHIS2, and data quality issues are still substantial. For both ACT and RDT consumption there are periods where the consumption and EPI data follow similar patterns, but there are other periods where this is not true due to considerable data quality issues with the commodity data currently reported on DHIS2. Focused efforts to strengthen capacity at health facility and health zone levels to improve the completeness and quality of supply chain data reported will be a priority under FY 2020 and 2021 funding. As such, until the data quality issues are addressed with supply chain data we will likely continue to see a distorted picture that will make comparisons difficult.

Key Question 4

To what extent does a functional LMIS provide visibility into timely and quality logistics data from various levels of the system? To what extent is commodity data visibility dependent on surveys or supervisory data rather than routine data reported by an LMIS?

Supporting Data

Figure A-22. LMIS reporting rate



Since 2018 the PMI/DRC team has been supporting the establishment of an LMIS in DRC. DHIS2 is the platform for collecting and entering logistics data from health facilities at all levels. These data are then migrated into InfoMed, which facilitates LMIS data visualization and generates information in the form of LMIS reports and dashboards, allowing in-depth analysis of stock status at all levels of the supply chain (central, CDR, health zone, and health facility). It also helps to identify problems and facilitate decision-making to resolve them. Health zones must report into DHIS2 the data from all health facilities within their zone as well as the stock levels in the health zone central office depot. After migration to InfoMed, the health zone must validate and publish its data to allow the production of reports and graphs in InfoMed, which will facilitate analysis and decision-making. The CDRs also report stock data for their warehouses into DHIS2 and publish in InfoMed. This reporting process provides visibility of health facility consumption and stock on hand, and visibility of deliveries and stock on hand for health zone and CDR levels.

As the timeliness, completeness, and quality of logistics data reported through DHIS2 and analyzed through InfoMed improves, and the use of these data for decision-making increases at all levels of the health system, combined with the planned six-month buffer stock, PMI expects to see more stable antimalarial product stock levels as healthcare providers and supply chain focal points at all levels are better able to manage the supply chain and prevent stockouts. As the data quality in InfoMed improves, health zone, provincial, and national supply chain focal points will be able to triangulate between commodity stock data and clinical services data to detect problematic sites from either a stock management perspective or from the clinical case management perspective.

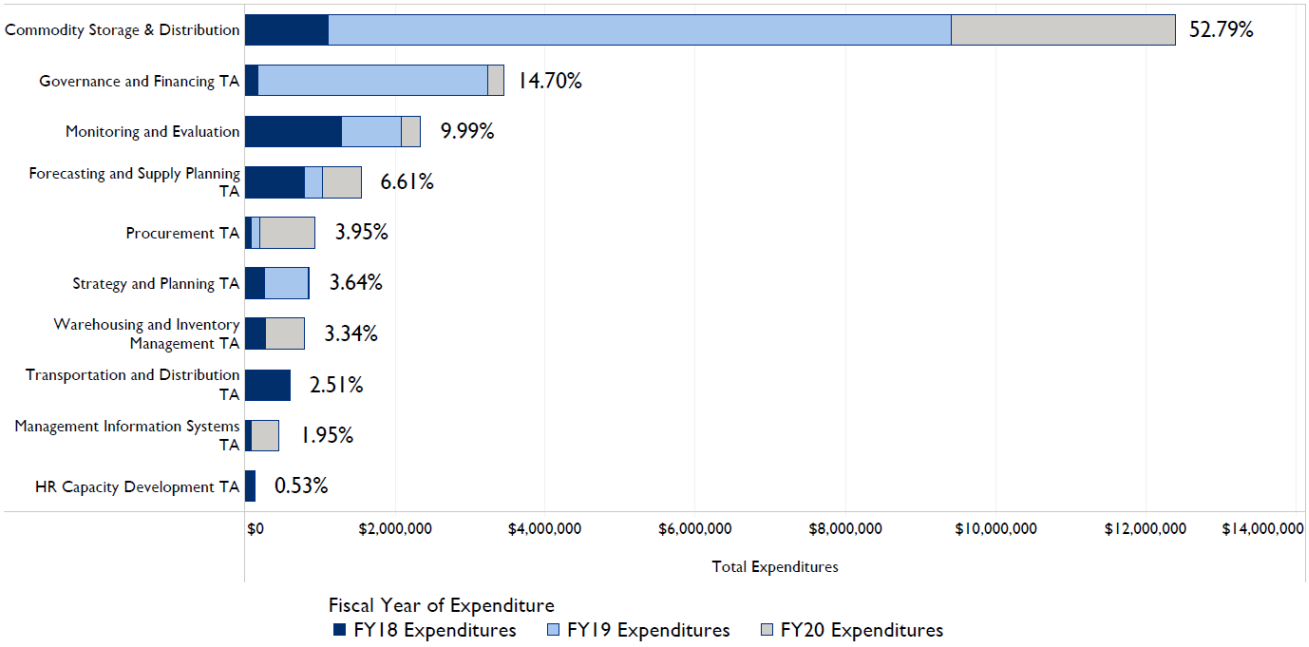
Key Question 5

What are the main supply chain technical assistance functions supported by PMI? Are there additional investments that PMI should make (e.g., increasing visibility of demand at health facilities) to ensure continual availability of quality products needed for malaria control and elimination at health facilities and the community

level? In areas performing well, is it dependent on PMI/donor funding (e.g., PMI and Global Fund pay for warehousing and distribution)? Should more be done to foster self-reliance in domestic systems and, if so, what approaches should be considered?

Supporting Data

Figure A-23. PMI supply chain investments by technical area 75ments by technical area



Due to DRC's vast size, the limited road and transport 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 in many other PMI countries. As a result, more than 55 percent of the DRC PMI budget for supply chain TA is spent on in-country storage and distribution costs, and this reflects the costs only to get these products to the health zone level. This demonstrates that proportionately more is spent on in-country transportation and distribution than other supply chain TA areas in DRC, despite the need for focus on these other TA categories and capacity-building. 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 these products from health zones to health facilities and community case management sites. Freight and logistics costs from the manufacturer to the regional warehouses are included in the procurement costs. Transport of commodities from the health zone to health facilities and community sites are supported by the DRC integrated health project.

Despite the recent efforts to improve coordination and collaboration between the multiple USAID-funded partners working in the supply chain, challenges persist. The USAID PMI and supply chain teams continue to encourage all USAID-funded supply chain and service delivery projects to work together and share information to improve the availability of malaria products at health facility and community levels. Based on experience of health zone central office staff withholding commodities from health facilities for any variety of reasons, PMI is currently supporting a last mile delivery pilot in five health zones. Deliveries from regional warehouses are packaged at the CDR level for direct delivery to the health facility level. The goal is to observe whether this packing for each health facility from the CDR level improves the continuity of stock availability at the health facility level. Additional

efforts are needed to strengthen the capacity of health facility staff in stock management, data reporting and use for decision-making so that facilities take the lead in managing their stocks and raise alerts in advance of stockouts to allow for early response to avoid or minimize stockouts.

With FY 2020 funds a national supply chain assessment and human resources for supply chain will be completed. In addition, a human resource for supply chain management assessment (HR4SCM) will examine the HR4SCM and inform the human resources strategy for health supply chain management in the DRC. Some key deliverables expected from this assessment include developing skills and jobs benchmarks for the logistics function in the DRC, identifying HR4SCM gaps for health logistics for public sector (with an emphasis on the different links from the central level to the community level) of the national supply chain of the DRC, and identifying the root causes of poor HR4SCM and the national logistics system performance.

The NSCA will inform evidence-based investment and planning in DRC supply chain system strengthening and DRC supply chain system performance management. It will provide a comprehensive, quantitative picture of both capability and performance of the DRC supply chain. The detailed information provided by the assessment will allow stakeholders to validate qualitative understanding of the "current state" of a supply chain, highlighting whether a supply chain is under-performing, meeting expectations, or exceeding the expected performance based on the system's capability and maturity.

Key Question 6

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

None

Supporting Data

None

Conclusions for Supply Chain Investments

PMI will continue to support the healthcare supply chain in DRC both to increase availability of malaria products in the short term while in parallel investing in longer-term systems strengthening. As in previous years, PMI will support in-country storage and distribution costs. 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. While a majority of the MOP nonprocurement funds for supply chain management go to covering these logistics costs, funds from across nearly all health funding streams, including PMI, are also leveraged for key supply chain system strengthening activities at the national and provincial level. The national supply chain assessment and human resources for supply chain assessments that will be conducted in 2021 will inform future supply chain TA activities and support. The planned supply chain capacity-building activities planned in 2021 targeting health zone and health facility staff will be beneficial to ensure the effective management of PMI and other donor-funded malaria commodities to ensure these life-saving medicines are available for the Congolese population. Given the number of health zones and facilities supported under the Integrated Health Project, support for such capacity-building may likely be needed beyond 2021. There will be continued investment in improving the quality and visibility of supply chain data, including from the last mile, through the InfoMed LMIS and dashboard, which takes routine logistics data from the DHIS2 and makes it usable and actionable. PMI funds will also support coordination and

policy support at the central level as DRC continues to implement its vision for a national healthcare supply chain, one which takes into account the realities of each province and empowers provinces within a national system.

Please see FY 2022 PMI budget tables for a detailed list of proposed activities with FY 2022 funding.

3.2 SURVEILLANCE, MONITORING, AND EVALUATION (SM&E)

NMCP Objective

The DRC National Malaria Control Strategic Plan for 2020–2023 includes the following objective related to surveillance, monitoring and evaluation: to improve the availability and flow of quality malaria health information by 2023.

NMCP Approach

The NMCP approach on SM&E places an emphasis on improving the quality of data collected through DHIS2, building the SM&E capacity of health providers, conducting periodic data audits, ensuring regular data analysis meetings at all levels of the health system, and providing interactive feedback. Efforts will also be made to gradually include more data from the private sector into the routine health system. The NMCP will work in collaboration with the DRC health information systems directorate and others as appropriate.

Additionally, the NMCP will be strengthening cross-border surveillance by introducing sentinel sites in nine border health zones. The NMCP strategic plan also prioritizes controlling outbreaks by strengthening the Integrated Disease Surveillance and Response System.

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.

- 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 (FY 2019 funded activities)

With FY 2019 funds, the following activities were supported by PMI:

- PMI and the Global Fund supported one nationwide EUV survey to understand malaria stock and case management.
- PMI provided TA to strengthen the central level NMCP M&E team's capacity through reestablishing regular M&E TWG meetings. These focused on analyzing malaria trends and mechanisms for improving health information. At the national level, PMI supported nine monthly data review and analysis meetings and three quarterly data validation meetings.
- 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.
- PMI supported the NMCP and DSNIS to organize two joint supportive supervision visits from the national level to the nine PMI provinces to review data quality issues.
- PMI supported routine data quality assessments (RDQAs) in 99 health facilities, covering 33 health zones across the nine PMI supported provinces.
- PMI supported 160 health zones with their monthly data monitoring meetings. SM&E provincial advisors also supported semi-annual data reviews in nine provinces.
- PMI supported the reproduction and dissemination of registers and forms for health facilities.

PMI-Supported Planned Activities (FY 2020 funded activities)

With FY 2020 funds, the following activities are planned:

- Support the Monitoring and Evaluation TWG and Malaria Task Force meetings to coordinate SM&E activities at the national and provincial levels.
- Support the NMCP to strengthen the analysis and use of malaria data from DHIS2 at the national and provincial levels. This includes support to the NMCP SM&E Division, the DSNIS, monthly data review and analysis meetings, and quarterly data validation meetings. Assist the NMCP in creating and disseminating quarterly malaria epidemiology bulletins.
- Support the NMCP to conduct joint quarterly supportive supervision visits from the national level to the provincial level to improve data management and use in PMI provinces.
- Support an assessment of the malaria surveillance system in PMI supported provinces which will be based on WHO Good Manufacturing Practices toolkits.
- Improve interpretation of surveillance data by assisting the NMCP to develop a modeled spatial layer of healthcare access and use in order to create a health access indicator and better population-based denominators for SM&E indicators.
- Support PMI provinces to use the WHO Malaria Module for data visualization, analysis, and interpretation and to conduct RDQAs with register review and comparison and joint supportive supervision.
- Support data quality and use in health zones by providing health zones with data collection and reporting tools and supporting health zones to regularly review their malaria data.
- Support the 2022 DHS survey.
- Support quarterly implementing partner meetings in PMI supported provinces to discuss SM&E activities, implementation challenges, and coordination.

Key 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.

Key Question 1

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

Table A-14. Available malaria surveillance sources

Source	Data Collection Activity	2019	2020	2021	2022	2023	2024
Household Surveys	Demographic Health Survey (DHS)				P		
Household Surveys	Malaria Indicator Survey (MIS)						
Household Surveys	Multiple Indicator Cluster Survey (MICS)						
Household Surveys	EPI survey						
Health Facility Surveys	Service Provision Assessment (SPA)						
Health Facility Surveys	Service Availability Readiness Assessment (SARA) survey						
Health Facility Surveys	Other Health Facility Survey						
Malaria Surveillance and Routine System Support	Therapeutic Efficacy Studies (TES)			P		P	
Malaria Surveillance and Routine System Support	Support to Parallel Malaria Surveillance System						
Malaria Surveillance and Routine System Support	Support to HMIS	X	X	X	P	P	P
Malaria Surveillance and Routine System Support	Support to Integrated Disease Surveillance and Response (IDSR)						
Malaria Surveillance and Routine System Support	Electronic Logistics Management Information System (eLMIS)	X	X	P	P	P	P
Malaria Surveillance and Routine System Support	Malaria Rapid Reporting System						
Other	EUV	X	X	P	P	P	P
Other	School-based Malaria Survey						
Other	Malaria Behavior Survey			P			
Other	Malaria Impact Evaluation						
Other	Entomological Monitoring Surveys						

*Asterisk denotes non-PMI funded activities, X denotes completed activities, and P denotes planned activities.

Key Question 2

What HMIS activities have been supported? What current priorities will be supported with FY 2022 MOP funding?

Supporting Data

PMI supports a comprehensive package of HMIS activities at all levels of the health system (health facility, zonal, provincial, and central levels). This includes the provision of registers and tools to health facilities in PMI provinces and support for zonal-level malaria data validation meetings. At the provincial level, PMI supports nine SME advisors who provide technical malaria SM&E support to the NMCP provincial health department, including training, data analysis, and production of quarterly malaria reports. Additionally, PMI supports RDQAs with register review and comparison, joint supportive supervision from the national to the provincial level to improve data management and use in PMI provinces, data review and analysis meetings, and data consolidation meetings. PMI continues to support the roll out of the WHO Malaria Module for data visualization, analysis, and interpretation at the central level and soon at the provincial and zonal levels. Additionally, PMI assists the NMCP in coordinating HMIS activities at the central and provincial levels.

PMI/DRC plans to continue supporting these HMIS priorities with FY 2022 MOP funding. There are no major changes from FY 2021 funded activities.

Key Question 3

Are there specific outcomes of past/current HMIS strengthening efforts that can be identified?

Supporting Data

Table A-15. Outcomes of HMIS strengthening efforts

	Indicator	2019	2020
Timeliness	% of reports received on time	64.7%	81.4%
Completeness	"Confirmed malaria cases for children under five years of age" was reported in an average of 14,162 facilities in 2019 and 15,008 in 2020.	75.4%	79.9%
Accuracy	There was no RDQA mission in 2019. Data accuracy was calculated for confirmed malaria cases for all ages. The score is the average from 81 health facilities from nine provinces.	N/A	85%

Between 2019 and 2020, the timeliness of reporting increased from 64.7 percent to 81.4 percent in DRC. Internet connectivity and infrastructure challenges in certain health zones most likely contribute to delayed reporting. Completeness also improved over this time period, but not to the same extent as timeliness, from 75.4 percent to 79.9 percent. Data accuracy was calculated as 85 percent in 2020 from 81 health facilities in PMI provinces. Although improvements were seen in 2020, there is a need to continue improving DHIS2 implementation in the country. As the number of health facilities reporting into DHIS2 continues to increase

(from 16,908 in 2019 to 17,630 in 2020), efforts will need to be made to ensure new health facilities and health workers have the proper HMIS tools and training necessary.

Key Question 4

Are there any other considerations that impact your funding allocation in this category (e.g., strategic information or capacity-building in-country)?

None

Supporting Data

None

Conclusions for Surveillance, Monitoring, and Evaluation Investments

PMI supports a broad range of SM&E investments both at the central NMCP level and also within each of the nine PMI provinces. The NMCP and the PMI/DRC team rely on routine HMIS data that is available on DHIS2 to track program implementation and identify gaps. DRC is also working to scale-up an LMIS (InfoMed) system to better track commodities. The HMIS data is showing some signs of improvement, in terms of timeliness and completeness, but data quality remains an important issue. To address HMIS challenges, the PMI/DRC team works to strengthen the HMIS at all levels of the health system, through the provision of tools, review meetings, supportive supervision, visualizations, TA, RDQAs, periodic bulletins, and other types of TA.

The PMI/DRC team plans to continue supporting these investments in FY 2022. There are no major changes from FY 2020–2021 approved activities.

Please see FY 2022 PMI budget tables for a detailed list of proposed activities with FY 2022 funding.

3.3. OPERATIONAL RESEARCH

NMCP Objective

Two of the guiding principles of the Malaria National Strategic Plan 2020–2023 are innovation in the development of new implementation tools in the fight against malaria and research to maximize progress toward malaria elimination in DRC.

NMCP Approach

The NMCP's new national strategic plan includes activities to organize a workshop for thematic groups to prioritize operational research areas for better decision-making, organizing a workshop on adopting good practices in research, training central level staff on research, mapping human resources in research, conducting identified research, and sharing information through Malaria Scientific Days.

In the past, the NMCP created a Surveillance and M&E Guide (2016), which included the steps for planning, implementing, and monitoring operational research, as well as the eight principal domains for operational research under the last National Strategic Plan. These included malaria prevention and case management, behavior change communication, vector control, etc.

PMI Objective in Support of NMCP

PMI supports priority NMCP research and M&E activities, including monitoring of insecticide resistance, ITN durability monitoring, EUV surveys, TES, and population-based surveys such as the MBS and DHS.

PMI-Supported Recent Progress (FY 2019 funded activities)

With FY 2019 funds, the PMI/DRC team finalized the protocol for the Deki reader Program Evaluation (PE)/Operational Research (OR). A Deki reader is an automated RDT reader that analyzes and reports RDT results. The Deki reader PE/OR will determine the degree of discordance in TPR and related malaria indicators between data obtained from Deki readers compared to what is reported through national HMIS. The study is one piece of a larger effort to understand the breadth and depth of data quality issues related to counts of patients tested by RDT, positive by RDT and test positivity rate. These efforts hope to inform important data quality questions in DRC. This will be an important step in assessing the accuracy of the malaria surveillance data in DRC and thus improve interpretation and approaches to improving data quality efforts moving forward. No other PE/OR is funded through PMI.

PMI-Supported Planned Activities (FY 2020 funded activities)

The Deki reader PE/OR is scheduled to start in the summer of 2021, as soon as the Deki readers arrive in DRC. The automated readers will be deployed to sentinel sites in Haut Katanga, Kasai Central, and Sud Kivu provinces, and a mechanism will be put in place to receive and monitor the data. By the end of 2021, preliminary data should be available. The study is scheduled to last approximately one year.

PMI Goal

PMI will conduct PE/OR that helps to evaluate coverage of population at-risk, intervention quality, or delivery efficiency; study reducing malaria transmission and disease burden; test effectiveness of new or evolved priority interventions and strategies; or explore new metrics and mechanisms to assess intervention impact.

Key Question 1

In consultation with the NMCP, have technical challenges or operational bottlenecks in program interventions been identified that require PE/OR? How have they been prioritized?

Supporting Data

Table A-16. Ongoing program evaluation and operational research

Funding Source	Implementing Institution	Research Question/Topic	Status/Timeline
PMI/DRC FY 2020	PMI Measure Malaria	Questionably high test positivity rate	Anticipated start date of May 2021
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.	Ongoing: October 2019–May 2021
Unitaid	Jhpiego	Feasibility of community IPTp. Four-country study. (TIPTOP)	Ongoing: 2017–2022

Key Question 2

Are there specific challenges in any intervention areas that merit further exploration or research with the potential of establishing strategies or interventions applicable in the near future?

Supporting Data

No other specific challenges that merit further PE/OR exploration have been identified for DRC.

Key Question 3

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

None

Supporting Data

None

Conclusions for Program Evaluation and Operational Research Investments

The PMI/DRC team is not proposing any OR/PE with FY 2022 funds. However, the ongoing FY 2020 Deki reader PE/OR that will determine differences in test positivity rates between the Deki readers and the national HMIS may inform the development of future data quality research. This is a priority for the NMCP, PMI, and the Global Fund, which is also supporting a separate test positivity rate study over the next 12 months. Please see FY 2022 PMI budget tables for a detailed list of proposed activities with FY 2022 funding.

3.4 SOCIAL AND BEHAVIOR CHANGE (SBC)

NMCP Objective

The NMCP's SBC strategic plan has been under development since November 2020 to align with the 2020–2023 National Malaria Control Strategic Plan. In this plan, the NMCP objective is to strengthen community dynamics and approaches to social and behavior change favorable to malaria control in the DRC's 26 provinces by 2023.

The overall objective of the SBC strategic plan is to have at least 90 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 promptly from a health facility or community site for effective case management, including receiving appropriate diagnosis and treatment.
- 80 percent of SBC, advocacy, and social mobilization activities are carried out at all levels of the health system and at the community level.

The final version of this new SBC strategic plan will be ready for dissemination in March 2021.

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.

The following are the specific SBC objectives:

- From 2021 to the end of 2023, at least 90 percent of children under five years of age and pregnant women will sleep nightly under an ITN.
- From 2021 to the end of 2023, at least 90 percent of parents/caregivers of children under five years of age will be able to bring their children to a health center or community care site within 24 hours of onset of fever in strict compliance with COVID-19 protection measures.
- From 2021 to the end of 2023, at least 80 percent of trained health workers will develop support plans with parents/caregivers of children under five years of age after each episode of malaria to consolidate therapeutic knowledge and adherence to preventive measures against possible relapses.
- From 2021 to the end of 2023, at least 60 percent of pregnant women will receive three recommended doses of IPTp during their pregnancy.

The NMCP's approach to SBC activities consists primarily of interpersonal communications (e.g., household visits) and mass media. Selection of approaches and channels are intended to maximize interaction with the community, achieve reach to the majority of the population, improve accountability, maintain an effective feedback loop between communities and healthcare providers, and engage decision-makers. The SBC

approaches also take into account their efficiency and adaptability to the rural, urban, and peri-urban context. The COVID-19 pandemic has had an impact on certain SBC approaches and channels that were scaled back in the interest of minimizing risk of COVID-19 transmission while continuing to disseminate essential malaria messaging.

The malaria SBC TWG has recently been revitalized and has the following core functions:

- Coordinate the development of malaria SBC activities and the implementation of multimedia and multisectoral communication campaigns.
- Ensure the monitoring/evaluation of studies, research, and surveys before, during, and after the implementation of SBC activities.
- Facilitate the dissemination of program and/or study results and the sharing of innovations.
- Document the "success stories" and strengthen the collaborative links between the various stakeholders to create an SBC in-country network.

PMI Objective in Support of NMCP

Key areas of PMI support for SBC include capacity strengthening at both national and provincial levels, tool 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 also supports the malaria SBC working group that coordinates planning and implementation of SBC activities. The revitalized SBC working group started meeting again in person or virtually (due to the COVID-19 pandemic context) once every two months for the start-up and then once a quarter. Donors support SBC activities for prevention and case management in their respective geographic focus areas. Global Fund typically supports outreach and mass media activities and is also coordinating with PMI to co-finance the Malaria Behavior Survey, currently being implemented.

PMI-Supported Recent Progress (FY 2019 funded activities)

PMI supported the following SBC activities with FY 2019 funds:

- Supported an NMCP assessment that showed weakness in planning, implementation, and monitoring of SBC activities and a lack of an SBC repository for normative documents and educational materials. An action plan to strengthen NMCP capacity is underway.
- Reached 85,391 community members, including pregnant women and their partners, on malaria preventive messages focused on care-seeking and IPTp through an umbrella campaign called VIVA! The campaign reached audiences in five PMI-supported provinces (Sud Kivu: 24,579; Kasai Oriental: 33,215; Haut Katanga: 23,590; Kasai Central: 1,249; and Lomami: 2,758). An additional 37,787 people were reached in the four non-VIVA! provinces.
- Reproduced 2,000 posters and 500 T-shirts to support the VIVA! campaign.
- Developed seven SBC intervention concepts using a Human Centered Design (HCD) approach including a Market Quiz, Couple's Game, and Quality Health Center; and supported ongoing refinement of the CHW tools and recognition that will enhance health promotion at the community level.
- Reached 375,418 people with messages on malaria via the "42502" platform which serves as a call-in hotline, and over 60,000 people with malaria-related Facebook postings.

- Organized 40 listening clubs with weekly meetings of at least eight participants each, where essential behaviors, norms, and attitudes toward malaria prevention, control, and treatment are discussed.
- Leveraged the popular national TV show "Libala Ya Bosembo" to broadcast six episodes designed to include messaging on malaria along with other health thematic areas.
- Developed and broadcast three Facebook posts during World Mosquito Day that underlined the importance of malaria prevention during the COVID-19 pandemic, reaching at least 15,000 people.
- Organized outreach mobilization interventions that reached 284,419 people with care-seeking messages in 65 supported health zones; 192,646 people with IPTp messages in 41 supported health zones; and 139,709 people on ITN use in 24 supported health zones through "Mini-Campaign". Additionally, the program reached 551,240 through the Community Champion approach.
- Reached 106,826 people with malaria care-seeking messages in five supported provinces through a mobilization activity carried out for World Malaria Day 2020.
- Launched a study in the target provinces of Lualaba and Tanganyika to understand the gaps between ANC attendance and IPTp provision to better inform provider behavior change interventions.
- Provided TA to the NMCP in developing the new National Malaria Communication Plan aligned to the NMCP Strategic Plan 2020–2023.
- Developed a virtual training curriculum for community health workers (CHWs); 140 CHWs from three health zones have already received training emphasizing care-seeking behavior, IPTp uptake, and ITN use.

The COVID-19 pandemic is the most substantial issue that negatively impacted the implementation of activities at all levels. Due to COVID-19, travel restriction and social distancing measures impacted activities that needed support from high levels such as training, data collection for studies, face-to-face conversation, etc. Turnover of SBC partner country leadership caused start-up delays for key partners, including longer than anticipated timelines for hiring staff and establishing satellite offices.

PMI-Supported Planned Activities (FY 2020 funded activities)

PMI will support the following activities with FY 2020 funds:

- Complete data collection, analysis, and dissemination of results for multiple formative data collection activities including the Malaria Behavior Survey, the ANC/IPTp study, and the provider behavior component of the Deki reader PE/OR. These efforts will include capacity-building of NMCP and other relevant stakeholders in analysis and interpretation of results, particularly for the MBS.
- Work with the NMCP and partners to use formative research findings to design more targeted SBC campaigns, messages, tools, and materials. Coordinate closely with the PMI service delivery partner for field implementation of SBC activities.
    - The MBS will provide insights on determinants of regular and correct ITN use, ANC attendance, and care-seeking for fever.
    - The ANC/IPTp study will provide insights on missed opportunities for ANC providers to provide IPTp to pregnant women coming to the ANC.
    - The RDT adherence study will provide insights on determinants of provider behavior related to testing, treatment, and reporting of malaria cases.
- Using the findings described above, implement well-designed SBC for priority behaviors of IPTp uptake, prompt care-seeking for fever, health worker adherence to national service delivery guidelines, and consistent and correct ITN use. Activities will be to:

    - Conduct outreach through a variety of approaches to shift household members' and community ideational factors and behaviors, including interpersonal communication, mass media, media networks, and text messaging platforms.
    - Train CHWs and facility-based health providers on SBC including interpersonal communication and use of educational materials for service communication.
- Continue support for the malaria SBC TWG and coordination of SBC stakeholders.
- Focus efforts on capacity-building of community faith leaders to ensure approaches to improve ANC care-seeking and IPTp uptake at community level are properly adapted to the local context, have local advocates/champions, and maximize reach/saturation among target populations. This will be focused on six PMI-supported provinces (Sud Kivu, Haut Katanga, Kasai Oriental, Sankuru, Kasai Central, and Lomami).
- Conduct monitoring and evaluation of SBC interventions in PMI-focused geographic areas.

Key Goal

Through the use of SBC interventions and in alignment with the 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.

Key Question 1

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

Table A-17. Prioritized behaviors with FY 2022 funds

Behavior	Target Population	Geographic Focus	Justification
Consistent IPTp uptake (including early and regular ANC attendance)	Pregnant women Spouses/other household decision-makers ANC providers	9 PMI-focus provinces	The most recent household survey data from 2017–2018 suggest that while a high proportion of pregnant women attend ANC at least once (82%), a much lower proportion make repeat visits throughout their pregnancy (ANC4, 43%). That only 17% of pregnant women attended ANC in the first trimester indicates late initiation and de-prioritization of return visits is a challenge for IPTp uptake. Also worth noting is that ANC1 and ANC4 (and presumably 2 and 3) decreased from the previous data point in 2013–2014. IPTp coverage rates have improved from 2013–2014 to the 2017–2018 data points, but IPTp1 is still only 56% and IPTp3 is 13%. Comparing ANC4 (43%) with IPTp3 (13%) indicates missed opportunities at ANC for providers to dispense IPTp. The ANC/IPTp gap study will provide important insights to guide activity design around IPTp uptake.
Prompt care-seeking for fever	Household decision-makers	9 PMI-focus provinces	The 2017–2018 MICS data show that care was sought for only 46% of children with fever. Access issues related to cost and distance are likely major challenges to prompt care-seeking. The 2013–2014 DHS data estimated that 52% of households in the lowest wealth quintile choose traditional or self-treatments compared with 24% of higher wealth quintiles. It is also known that over 70% of households live more than 5 km from a health facility. While access to services can be addressed through expansion of community-based services, 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 case management guidelines for testing and treatment	Health providers in the public/ nonprofit sector Caretakers/ patients seeking services	9 PMI-focus provinces	The 2017–2018 MICS data show that 22% of children with fever received a finger/heel stick, and of those receiving antimalarials, only 42% received an ACT. Only 17% have received any antimalarial drug the same day or next day. A pilot activity in Haut Katanga focused on a continuous quality improvement approach will provide new insights into facility-level factors associated with provider adherence to case management guidelines. This activity, combined with an upcoming qualitative assessment investigating factors related to health worker adherence to RDTs will help to shape SBC interventions to improve the quality of case management practices in health facilities.

Note: Although correct and consistent net use and net care is not included as a priority behavior in the table relative to other behaviors, it remains an important behavior as the DRC continues to face an increasing number of malaria cases and ITNs are the sole vector control intervention. School children (6–20 years old) have the lowest ITN use when households have insufficient ITNs. The NMCP is planning school-based distribution in primary schools (targeting children 6 to 13 years of age). PMI will conduct SBC for ITN for school children everywhere during the school-based distribution and during the school year in the PMI-supported provinces where school-based distribution will occur.

Key Question 2a

For consistent IPTp uptake, what gaps exist in understanding the barriers to the adoption and maintenance of malaria prevention and treatment behaviors?

Behavior	Key Facilitators	Key Barriers	Knowledge Gaps
Consistent IPTp uptake	Relatively high ANC1 indicates that women value pregnancy care. Health facilities ability or "readiness" to provide malaria services (commodity availability, trained personnel) is a basic facilitator.	Access issues and education have been noted as key barriers. An earlier study from 2011 found that late initiation of ANC was associated with financial barriers, absence of problems with the pregnancy, rural residence, and multiparity.[13] [Additional detail is provided in the MIP section.]	More data are needed on determinants of ANC attendance and IPTp uptake, especially missed opportunities for IPTp at ANC. The MBS and ANC/IPTp study will address these gaps.

Supporting Data

More data are needed on determinants of ANC attendance and IPTp uptake, especially missed opportunities for IPTp at ANC. These knowledge gaps were recognized in previous MOPs and PMI planned support for formative data collection activities in response. The MBS and ANC/IPTp study are underway at the time of MOP writing and will provide insights to shape SBC design for this priority behavior.

Key Question 2b

For prompt care-seeking for fever, what gaps exist in understanding the barriers to the adoption and maintenance of malaria prevention and treatment behaviors?

[13] Mafuta & Kayembe, 2011. Late antenatal care attendance, main determinants, in health zones of Katanga and Equateur, DRC.

Behavior	Key Facilitators	Key Barriers	Knowledge Gaps
Prompt care-seeking for fever	Health facilities' ability or "readiness" to provide malaria services (commodity availability, trained personnel) is a basic facilitator.	Lack of access to services, preferences for self-treatment, and/or traditional treatments. [Additional detail is provided in the CM section.]	More data are needed on determinants of prompt care-seeking for fever.

Supporting Data

More data are needed on determinants of care-seeking for fever. These knowledge gaps were recognized in previous MOPs and PMI planned support for formative data collection activities in response. The MBS is underway at the time of MOP writing and will provide insights to shape SBC design for this priority behavior.

Key Question 2c

For health worker adherence to malaria case management guidelines, what gaps exist in understanding the barriers to the adoption and maintenance of malaria prevention and treatment behaviors?

Behavior	Key Facilitators	Key Barriers	Knowledge Gaps
Health worker adherence to malaria management guidelines for testing and treatment	Health facilities' ability or "readiness" to provide malaria services (commodity availability, trained personnel) is a basic facilitator.	Commodity stockouts; health worker resistance to change/adapt to updated guidelines for testing and treatment; delayed dissemination of 2017 updated case management guidelines.	More data are needed to understand the complex behavioral determinants that influence provider adherence to national case management guidelines.

Supporting Data

More data are needed on determinants of provider adherence to guidelines. These knowledge gaps were recognized in previous MOPs and PMI planned support for formative data collection activities in response. A new pilot activity in Haut Katanga focused on a continuous quality improvement approach will provide new insights into facility-level factors associated with provider adherence to case management guidelines. This activity, combined with an upcoming qualitative assessment investigating factors related to health worker adherence to RDTs results or willingness to use RDTs will help to shape interventions to improve the quality of case management practices in health facilities.

Key Question 3

What is the country's capacity to design, implement, and monitor SBC interventions at the national and sub-national level?

The NMCP has limited capacity to design, implement, and monitor SBC interventions at the national and provincial level.

Supporting Data

The NMCP assessment conducted by PMI in August 2020 shows a limited capacity for the NMCP SBC team to design, plan, implement, and monitor an SBC intervention at all levels. PMI, in collaboration with other USAID health programs, is investing in SBC capacity-building efforts in DRC more broadly. Two key accomplishments were achieved in late 2020: the revision of the NMCP's national communication strategy and the establishment of the malaria communication task force. PMI will continue to support the task force, as well as validation and dissemination of the strategy. PMI will also continue to support SBC capacity-building, largely through training, including development of remote interactive training modules recorded in local languages directed to national and provincial level SBC managers. PMI and USAID are also working to create a national SBC committee composed of members from the Ministries of Health and Education, the Program for Youth and Adolescents, Inspection Générale, and the General Secretariat of the Ministry of Primary, Secondary, and Technical Education to guide the process of SBC in the DRC. Finally, PMI has also supported efforts to build the capacity of future health practitioners at DRC universities through development of SBC curricula designed for medical students. This was successfully introduced at University of Kinshasa and will hopefully be extended to the University of Lubumbashi.

Conclusions for SBC Investments

PMI will conduct outreach activities through a variety of approaches to shift household members' and community ideational factors and behaviors, including interpersonal communication, mass media, media networks, and text messaging platforms. Engagement with community- and faith-based organizations will be an important approach to ensure communities and beneficiaries are at the center of behavior change activities and have the opportunity to influence and shape these activities. In the urban and peri-urban areas, PMI will use mass media, media networks, and text messaging platforms to reach beneficiaries for priority behaviors. In the more rural areas, PMI will rely more on interpersonal communication, group communications, and existing social/community networks (religious leaders and CHWs).

PMI invested more heavily in previous MOPs to close knowledge gaps with formative research. Those studies are currently ongoing or will launch soon and the data they generate will inform the activities funded in this MOP. PMI will shift focus from formative research to robust monitoring to ensure activities are having the intended effect and to inform course correction as needed.

Using the SBC capacity assessment at central and provincial levels, PMI developed an action plan to strengthen NMCP capacity in designing, planning, implementing, and monitoring an SBC intervention. PMI will encourage the NMCP team to participate in different webinars organized by partners and familiarize with SBC tools developed by the SBC/RBM TWG and partners. PMI will continue to support the national malaria communication task force and the national SBC committee. It will target SBC training to MOH officials (including NMCP) and support continued expansion of pre-service training in SBC for doctors and nurses finishing their courses of study.

SBC activities remain largely unchanged from the FY 2021 MOP. The overall budget has decreased slightly but with additional funds going to support expansion of the community health platform, including community IPTp, which can be considered a strategic approach to expanding reach and access to health services, one of the main barriers to uptake of priority behaviors that the DRC team has identified. We are also shifting some funds from

SBC for ITN use to MIP and case management behaviors; this is in line with the priority behaviors as described in this MOP.

Please see FY 2022 PMI budget tables for a detailed list of proposed activities with FY 2022 funding.

3.5 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 national malaria strategic plan and reach its objectives.

NMCP Approach

- Strengthen its institutional and technical capacity.
- Develop and implement 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

- Provide the DRC NMCP with an adequate and conducive working environment. This will be co-financed by PMI and the Global Fund.
- Provide malaria management training for malaria focal points and health zone officers.
- Ensure malaria activities are well coordinated at provincial and lower levels of the health system.
- Support implementation of NMCP organizational development and leadership strengthening activity that follow the 2014 NMCP institutional audit recommendations.
- Support national and provincial coordination of malaria SBC through TWGs.

PMI-Supported Recent Progress (FY 2019 funded activities)

- PMI supported the task force and malaria TWG (case management, vector control, surveillance monitoring and evaluation, supply chain, and SBC) meetings at national and provincial levels and has supported monthly planning and data validation meetings at the health zone level 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 began the process to support the NMCP to improve its organizational, management, and leadership capacity by defining the initial scope of activities in collaboration with the NMCP and Global Fund and by recruiting a consultant who will be working with the NMCP director and his management team to identify gaps and develop an action plan.
- Following the lifting of the Trafficking and Violence Protection Act sanctions on DRC, PMI reintegrated malaria provincial advisors in the nine PMI-supported provinces.
- PMI supported the NMCP to develop the 2020–2023 national malaria strategic plan to align with the country's Health and Social Development Plan (PNDS).
- The first national malaria SBC TWG meeting was organized in Kinshasa in December 2020.

PMI-Supported Planned Activities (FY 2020 funded activities)

- PMI will second a senior manager at the NMCP to provide close organizational, managerial, and TA to the NMCP.
- PMI will continue to support the NMCP to implement the 2020–2023 national malaria strategic plan to achieve malaria prevention and case management objectives.
- PMI will continue to expand the malariology training and will reach health zone managers from Sankuru province in the next 12 months, with the goal of reaching all PMI-supported provinces by the end of 2022.
- The DRC NMCP's office is not a conducive working environment for staff, and they often struggle with phone and internet connectivity issues due to its location. Thus, PMI, in collaboration with Global Fund, has been advocating for a new office space for NMCP. The MOH has requested Global Fund 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. Under the new funding model 3 (NFM3) and following NMCP staffing reforms, the Global Fund will support the rental of a temporary office space, while PMI will support the office equipment. This activity has been delayed due to the NFM3 grant approval and grant-making process that took place in 2020.
- PMI supported an institutional and organizational audit of the NMCP in 2014 but the recommendations have not been implemented. PMI will support the implementation of the key recommendations from this audit document as well as the more recent organizational development and leadership needs review. This has been discussed with both the Minister of Health and the Secretary General as key to guarantee adequate coordination of the donor resources being allocated to malaria control 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 TWG meetings at the national level as well as provincial and health zone level task force and data validation meetings in all PMI-supported provinces.
- Support for the Field Epidemiology and Laboratory Training Program, which will include FELTP trainees working directly with the NMCP.

Key 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

Upon identifying specific goals, objectives and actions for health systems strengthening focused on reducing malaria infection, morbidity and mortality, can you outline these and consider relevant support?

No additional needs.

Supporting Data

None

Conclusions for Additional Health Systems Strengthening Investments

As in previous years, PMI will continue to support additional health systems strengthening investments to build the NMCP capacity to ensure that, as DRC's driver for malaria prevention and control, the NMCP has the leadership and organizational development skills to effectively manage donor support and resources to execute activities in support of the 2020–2023 national malaria strategic plan.

Please see FY 2022 PMI budget tables for a detailed list of proposed activities with FY 2022 funding.