PMI | U.S. PRESIDENT'S MALARIA INITIATIVE

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CDC

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DEMOCRATIC REPUBLIC OF THE CONGO MALARIA PROFILE

I. ABOUT

Launched in 2005, the U.S. President's Malaria Initiative (PMI) supports implementation of malaria prevention and treatment measures as well as cross-cutting interventions. PMI's 2021-2026 strategy, *End Malaria Faster*, envisions a world free of malaria within our generation with the goals of preventing malaria cases, reducing malaria deaths and illness, and eliminating malaria in PMI partner countries. PMI currently supports 27 countries in Sub-Saharan Africa and three programs across the Greater Mekong Subregion in Southeast Asia to control and eliminate malaria. The Democratic Republic of the Congo (DRC) began implementation as a PMI partner country in fiscal year (FY) 2011. Please see the DRC FY 2024 Malaria Operational Plan for more information on PMI's approach and investments.

II. CONTEXT

Table 1: General Demographics and Malaria Situation

Population	120,313,587 (District Health Information Software 2, 2022).
Population at risk of malaria	100% of the DRC population is at risk of malaria (DRC National Strategic Plan 2020–2023).
Malaria prevalence	Prevalence in children 6–59 months of age is 39% for rapid diagnostic tests and 31% for microscopy (Multiple Indicator Cluster Survey 2017-2018).
Malaria incidence/1,000 population at risk	The incidence was 227 cases per 1,000 population in 2022 (National Malaria Control Program Annual Report 2022).
Peak malaria transmission	Approximately 97% of the population lives in zones with stable malaria transmission lasting 8–12 months per year. The nine PMI focus provinces, which sit in the southeastern region of the country, have peak transmission for about 6–8 months from October to April.

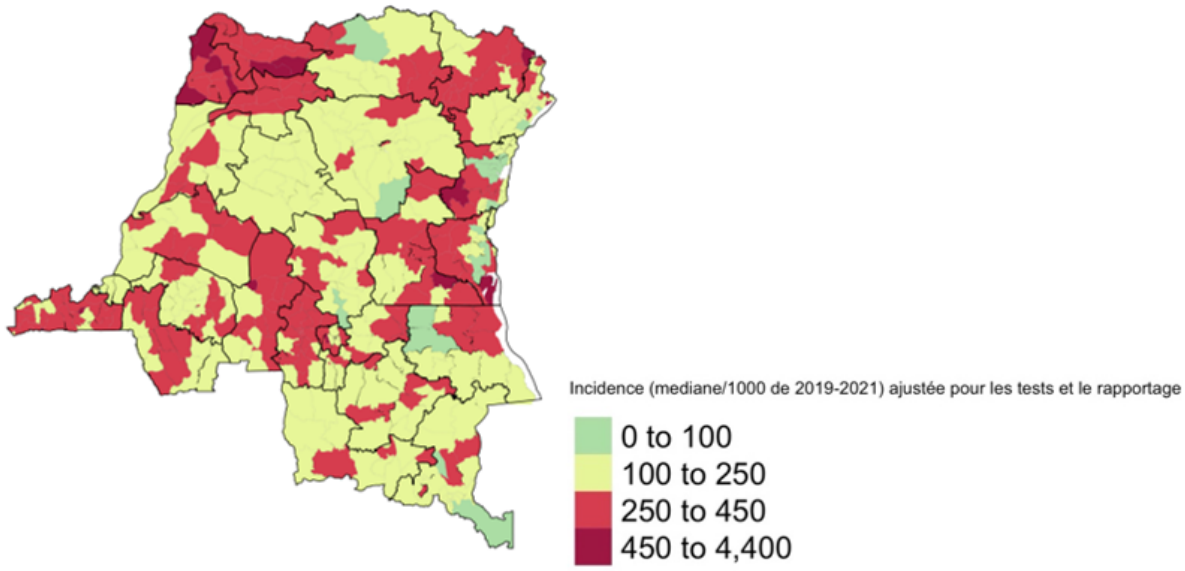
Stratification

The DRC launched the High Burden High Impact 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 malaria epidemiological stratification conducted in January 2023 by the National Malaria Control Program (NMCP) using Demographic and Health Information System 2 (DHIS2) data from 2019 to 2021. The stratification mapping used the median values of malaria incidence adjusted for reporting and testing and shows that, at the health zone level, the highest malaria incidence is recorded in the northwest, the northeast and throughout the central and western parts of the country, including the province of Kinshasa.

Figure 1: Stratified Malaria Incidence per 1,000 population (2019-2021)

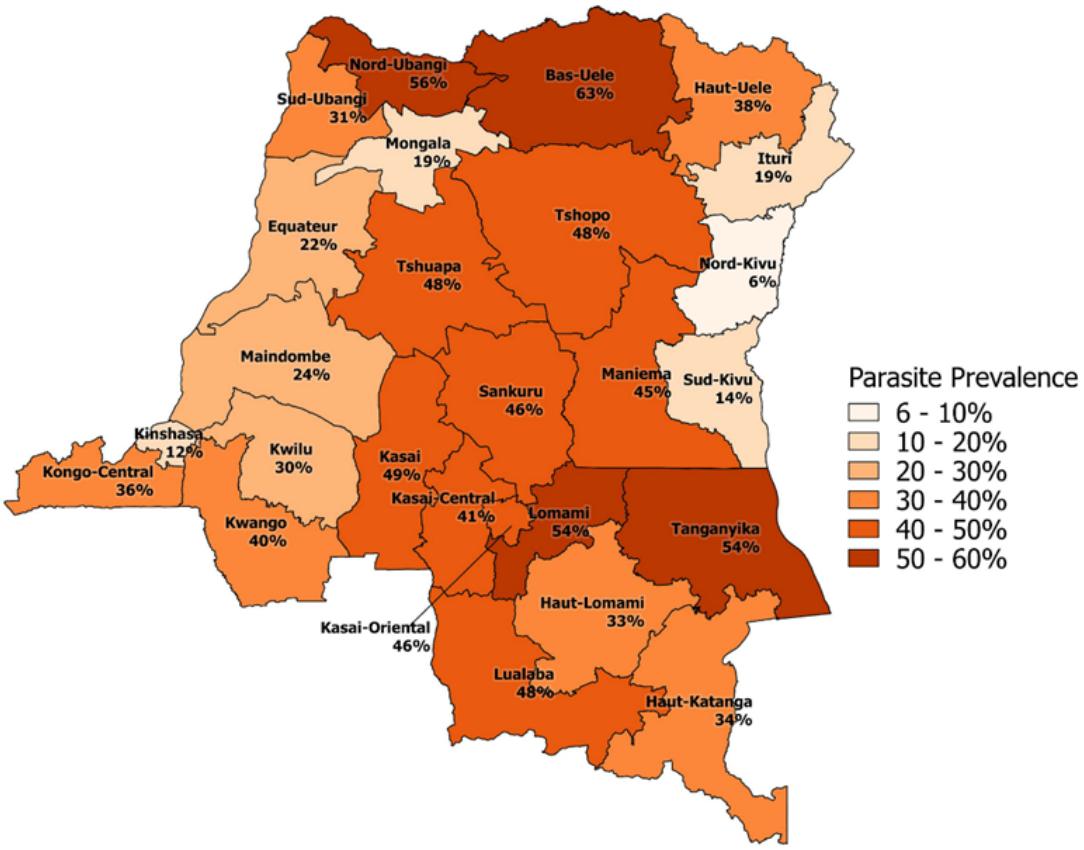


DRC Stratification Report, 2023. Malaria incidence per 1,000 population (2019-2021) at the health zone level adjusted by testing and reporting.

The most recent entomological data on insecticide resistance confirmed the widespread resistance of mosquitoes to pyrethroids in some provinces. These results should inform the choice of mosquito nets for vector control. The DRC is planning, through the National Malaria Strategic Plan 2024-2028, to distribute piperonyl butoxide insecticide-treated mosquito nets (ITNs) and dual active ingredient nets.

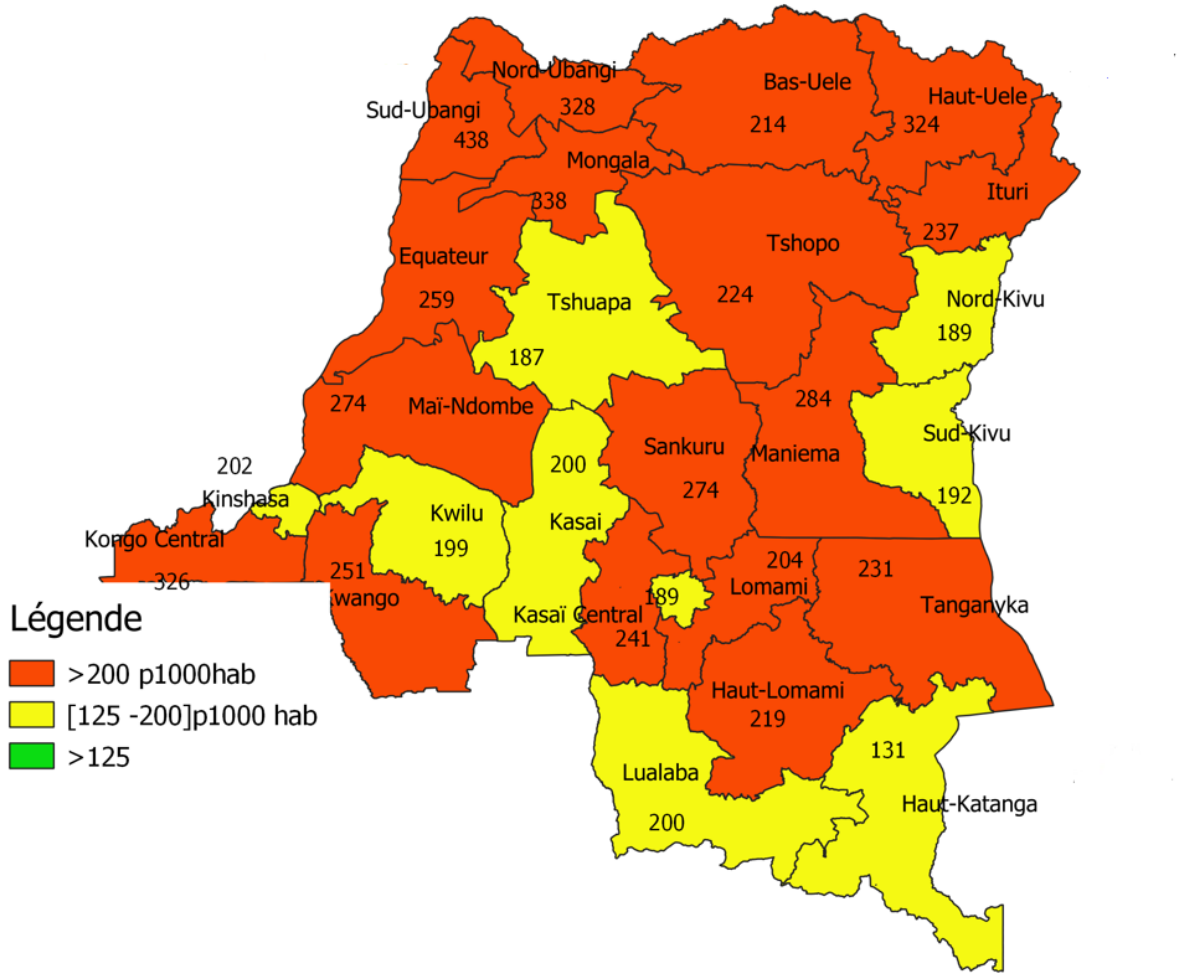
While other interventions such as seasonal malaria chemoprevention (SMC) and intermittent preventive treatment for infants may only reach pilot phases over the next few years, the stratification exercise predicted that those interventions, along with improved case management in the high burden provinces identified, would avert an additional 14 million cases, corresponding to an estimated 28 percent reduction in cases nationwide. As transmission decreases, there will be an increased need in high quality routine surveillance data to model transmission heterogeneity within provinces.

Figure 2: Map of Malaria Prevalence (Children 6–59 months of age who tested positive for malaria by microscopy)



MICS, 2017/2018

Figure 3: Map of Malaria Incidence per 1,000 Population in 2022



2022 DRC DHIS2, NMCP Annual Report

Table 2: Malaria Parasites and Vectors

Principal Malaria Parasites	The principal malaria parasite is *Plasmodium falciparum*, followed by *Plasmodium malariae* and *Plasmodium ovale*. *Plasmodium vivax* has also been found (National Malaria Strategic Plan 2020-2023).
Principal Malaria Vectors*	*An. gambiae s.l.*, *An. funestus*, and *An. paludis* are the main malaria vectors in DRC (National Malaria Strategic Plan 2020-2023); *An. moucheti* is emerging as a main vector, mainly in the northeast part of the Country. *An. gambiae* is resistant to pyrethroids. Moderate deltamethrin resistance intensity was recorded in 5/14 sites and high in four (Buta, Kabondo, Kalemie and Rutshuru), and low in 5 (Lodja, Pawa, Mikalayi, Mweka and Nyankunde). Permethrin resistance intensity was low in 3/14 (Kapolowe, Mikalayi and Mweka) and high in six (Lodja, Buta, Pawa, Kingasani, Kamina and Rutshuru). Alpha-cypermethrin resistance intensity was low in only two sites (Mikalayi and Mweka), moderate in 3/14 (Kingasani, Karawa and Nyankunde) and high in eight sites (Kenge, Lodja, Buta, Pawa, Kabondo, Kapolowe, Kamina, Kalemie and Rutshuru).

*See Entomological Monitoring section of the MOP for more details on vector bionomics and insecticide resistance and indoor residual spraying section for details on residual efficacy.

COUNTRY HEALTH SYSTEM

Health System Structure, Role, and Responsibilities

DRC's public health sector has three levels: central, provincial, and operational.

- **The central level** has a normative role and regulatory responsibility. It defines policies, strategies, standards, and national guidelines and provides advisory support, compliance control, and monitoring of implementation in provinces. This level is headed by the Minister of Health and consists of the general secretariat, directorates, and departments such as National Control Programs.
- **The provincial level** is made up of 26 provincial health divisions. They play a technical role by providing supervision and support to health zone staff by translating strategies and policies into guidance and tools to facilitate implementation at the operational level.
- **The operational level** is charged with implementing the primary health care strategy. It comprises health zones (*zones de santé*) with general referral hospitals, and health catchment areas (*aires de santé*) of which the vast majority also have health centers called *formations sanitaires*.

Health Care Delivery System

In DRC, health care is provided in both public and private structures. The first level of the public health care system consists of health centers open for basic treatment. The next level are the health centers where general physicians practice. The third level contains referral

hospitals, where citizens can receive more specialized treatment. The fourth and highest level is made up of university hospitals. In addition, 440 out of 519 health zones have 10,112 functional community care sites.

Of the 519 health zones, 393 have general reference hospitals. Faith-based organizations run 34 percent of the general reference hospitals, which are integrated into the public health system. Care-seeking and treatment in the private sector (including non-profit and faith-based facilities, for-profit clinics, pharmacies, and drug shops) is widespread. Most non-profit/faith-based facilities report into the routine health information system and abide by the national policies and guidelines. According to the 2013-2014 DHS,[1] among parents with children with fever, 49 percent report seeking care in the public sector and 47 percent in the private sector.

The Government of the DRC has made noticeable progress in increasing funds for health care. Please see the NMCP Strategic Plan section for more information.

Malaria Case management

Malaria case management services are provided at different levels of the healthcare delivery system through national guidelines. PMI supports the procurement of essential diagnostic and treatment commodities, 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. At the central level, PMI supports a case management technical working group to strengthen the coordination of malaria interventions.

All suspected malaria cases are supposed to be tested by rapid diagnostic test (RDT). Microscopy is recommended for cases suspected of treatment failure, to monitor parasite clearance for severe malaria cases, and 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.

Malaria in pregnancy

Per World Health Organization (WHO) guidelines, the national strategy includes provision of ITNs at the first ANC visit, a minimum of four doses of intermittent preventive treatment of malaria in pregnant women (IPTp) starting at 13 weeks gestational age, and effective case management of malaria. PMI supports the implementation of the national MIP strategy in all

[1] Ministère du Plan et Suivi de la Mise en œuvre de la Révolution de la Modernité - MPSMRM/Congo, Ministère de la Santé Publique - MSP/Congo and ICF International. Enquête Démographique et de Santé en République Démocratique du Congo 2013-2014. (Rockville, Maryland, USA, 2014): https://dhsprogram.com/publications/publication-FR300-DHS-Final-Reports.cfm.

supported provinces, procuring sulfadoxine-pyrimethamine (SP), training and ensuring supervision of health providers. Efforts to strengthen coordination between NMCP and the maternal and reproductive health program are ongoing.

Health Management Information System

The NMCP places an emphasis on improving the quality of data collected, and fed into the DHIS2, strengthening the capacity of health providers, conducting periodic data reviews meetings at all levels of the health system to ensure regular data analysis and providing interactive feedback.

Supply Chain, and Pharmaceutical Management System

The DRC public sector healthcare supply chain reflects the fragmented geography and infrastructure of the country. On the one hand, there are long-term efforts to strengthen the central system, the *Système National d'Approvisionnement en Médicaments Essentiel* balanced with more operational support at provincial level for storage and distribution. The national system centralizes policy and standards including the logistics management information system and decentralizes procurement, storage, and distribution. The *Système National d'Approvisionnement en Médicaments Essentiel* is managed by the *Programme National d'Approvisionnement en Médicaments* under the *Direction de la Pharmacie et du Médicament*, a unit in the Ministry of Health. On an operational level, the Federation *Des Centrales D'Approvisionnement En Médicaments Essentiels* serves as a national coordinating body, with two structures under it charged with procurement, including one in Kinshasa and one in Goma to cover the east and southeast. There is currently no centralized storage, although a central warehouse is currently being developed based in Kinshasa. Storage and distribution are decentralized to the provinces with a network of provincial level not-for-profit associations, *Centrales de Distribution Regionale* (CDRs). Currently, provinces do not all have a CDR, with some CDRs supporting more than one province, and the capacity of each CDR varies significantly. PMI contracts with CDRs for storage and distribution in PMI-supported provinces. Distribution to zones and/or health facilities is done quarterly, however difficulties in access (i.e., during the rainy season) can mean less frequent distribution. PMI procured products are delivered to each of eight PMI-supported provinces and in some cases (ITNs for non-routine purposes) to Kinshasa. The CDRs typically deliver to the health zone level, apart from five zones in each of two provinces (Haut Katanga and Lualaba), where they are delivered directly to health facilities by private sector third-party logistics providers. Community health workers then collect products from their supervisory health facility.

Forecasting and supply planning is done at provincial level and forecasts are then rolled up to the national level with separate supply plans for each province.

Since 2018, PMI has been supporting the establishment of a logistics management information system in DRC. The national health management information system known as the *Système National d'Information Sanitaire* (SNIS), a DHIS2-based platform used for collecting and entering logistics data from health facilities at all levels. Data, including stock levels and quantities received and issued, are manually recorded at health facility level and then entered into the electronic system at zones. The SNIS is complemented by an interoperable *Système d'Information en Gestion Logistique des Médicaments* (InfoMED) which captures SNIS data and presents it for decision-making through a variety of reports and decision support graphics. The CDRs warehouse management system data are also captured in InfoMED. While the quality of logistics data is still somewhat uncertain. However, as the timeliness, completeness, and quality of logistics data reported through DHIS2 and analyzed through InfoMED improves, the use of the data for decision-making is expected to increase at all levels of the health system.

OTHER CONTEXTUAL INFORMATION

DRC has continued to struggle with corruption, weak institutions, insufficient human capacity and basic infrastructure. Due to the DRC's immense size and development challenges, PMI is making strategic choices, focusing resources on key issues and geographic areas for maximum impact. PMI operates in the conflict-affected areas of eastern DRC, including South Kivu, northern Katanga, and parts of Kasai Oriental.

PMI continues to focus on strengthening the government's ability to provide and regulate services equitably to contribute towards Universal Health Care objectives. PMI is working with USAID projects and activities to contribute towards greater access to basic services, such as health care and education, and demands institutional accountability, to expand and diversify access to economic opportunities. Also, as the U.S. government contributes to global health security in the DRC, PMI strategy and plans will increasingly align with greater USAID Mission objectives to strengthen the government's ability to prevent, detect, and respond to outbreaks and threats.

Internally Displaced Persons and Refugees

The DRC still remains home to one of the more complex and longer humanitarian crises in the world, with tremendous impacts on displaced populations, food insecurity, and problematic management of epidemics. According to the DRC Humanitarian Response Plan, 27 million people are in need of assistance in 2022, almost 7.4 million more than in 2021. In addition to being one of the highest malaria burden countries, the United Nations Foundation found that DRC is among the countries with the largest IDPs (United Nations Foundation Report 2022).

Targeting IDPs and refugees is important to accelerate the reduction of malaria mortality and morbidity efforts. Most of the refugees are located in the Northern provinces, while IDPs are seen throughout the country. As part of a rapid response, the Bureau of Humanitarian Affairs provides IDPs with a one-time package of items valued at $200 to $250 per family, including a bed net. In addition, these populations benefit from mass campaign distribution of ITNs. They also benefit from PMI-supported malaria case management services in health facilities, in line with national guidelines, at subsidized costs in five provinces (Sud Kivu, Tanganyika, Lualaba, Kasai central, and Kasai Oriental).

III. NMCP STRATEGIC PLAN

The DRC's National Malaria Strategic Plan 2024-2028 aims to improve the DRC population's health status by reducing the human and socio-economic burden due to malaria. The overall objective is to reduce malaria morbidity by 70 percent and malaria mortality by 50 percent from 2021 levels. These goals revolve around the National Health Development Program 2024-2028 essential axes, aiming to improve the provision of services directed towards mothers, newborns, children and adolescents, the empowerment of communities to take ownership of the fight against malaria in all provinces and the unfailing commitment of technical and financial partners in the malaria control.

The DRC's National Malaria Strategic Plan 2024-2028 focuses on six strategic pillars, including a cross-cutting pillar focused on strengthening governance and the implementation environment:

1. Protection of at Least 90 percent of People Exposed to the Risk of Malaria through Effective and Adequate Measures by 2028

DRC's at-risk population for malaria will be provided with insecticide-treated nets, selected based on the evidence generated by entomological surveillance alongside other factors. Where resources are limited, entomological surveillance (e.g., insecticide resistance) can be combined with malaria burden rate and other factors to help target the most expensive ITN tools (e.g., mosquito nets standards, the piperonyl butoxide mosquito nets, G2 mosquito nets) towards areas where the impact may be the greatest. ITNs will be distributed through mass campaigns (e.g., universal access, schools, and civil society organizations) and routine distributions through ANC and pre-school clinics. Additionally, the integration of digitization and support tools will ensure operational efficiency and optimal coverage. Indoor Residual Spraying (IRS) is another vector control tool which will be considered in pilot areas; standards and guidelines will be produced.

Integrated Vector Management: The promotion of intra- and peri-domestic sanitation, and specifically the management of breeding sites, will be continued in collaboration with the hygiene department in the *Direction Générale de Lutte contre la Maladie* formerly known as the "Healthy Village Program." Vector control will be reinforced by managing breeding sites through a pilot project, the results of which will determine the modalities of the extension. The Ministry of Health will strengthen the collaboration with ministries including the Ministry of the Environment, Urban Planning and Housing, Interior, Rural Development, Infrastructure, Public Works and Redevelopment of the Territory and Agriculture, Fisheries and Livestock through a multi-sectoral program.

2. Screening of all Malaria Suspected Cases and Treatment of 100 Percent Tested Positive Per Updated National Guidelines by 2028

The main NMCP case management objective, according to the National Malaria Strategic Plan 2024-2028, is to reduce malaria related morbidity by 70 percent and malaria mortality by 50 percent from 2021 levels. The national malaria case management guidelines recommend that any malaria suspected case must be tested using a RDT, at the health facility and community care site (CCS) level, or an approved pharmacy in accordance with national guidelines. The thick drop/thin smear will be performed for any presumed case of treatment failure or any severe malaria case at the referral level.

All confirmed malaria cases should receive prompt, quality-assured treatment, according to national guidelines. In practice, any case tested positive for RDT will receive an artemisinin-based combination therapy (ACT) recommended by national policy, namely the combination artesunate-amodiaquine (ASAQ) and artemether-lumefantrine (AL) regardless of environment (rural or urban). The artesunate-pyronaridine (AP) combination has been authorized by the national pharmaceutical regulatory authority and will be introduced in limited areas. Injectable artesunate is the preferred treatment for severe forms. In case of unavailability, the country recommends the combination quinine-clindamycin for non-severe cases and injectable artemether or injectable quinine for severe cases.

The CCSs are responsible for providing integrated care of childhood illnesses and gradually for certain adult pathologies and eventually certain family planning services under the supervision of the head nurse in charge of the CCS.

3. Specific Protection of all Vulnerable Targets Through Intermittent Preventive Treatment in Pregnant Women, Infants and Children

IPTp takes place both in facilities and also at the community level in some areas. Chemoprevention of pregnant women will be implemented in all health zones (HZs) through ANC services. Implementation in the community will continue in the pilot phase in three HZs (Kenge, Bulungu and Kunda), to assess the feasibility of scaling up this approach.

SMC should be provided to high-risk groups according to guidelines. Seasonal and sustained malaria chemoprevention in infants should be rolled out and scaled up according to guidelines. SP and amodiaquine for the treatment of SMC in children aged 6-13 years should be assessed in targeted areas.

In 18 HZs of Haut-Katanga and eight other health zones of Lualaba where malaria transmission is seasonal with a short rainy season that extends over four months (October-January), a pilot implementation plan prior to scale-up will be developed and implemented to identify eligible areas for SMC and intermittent preventive treatment in infants per WHO criteria.

4. Strengthening Communication for Social and Behavior Change to Get Community Commitment, Taking into Account Specific At-Risk Groups (Hard-to-Reach or Landlocked Populations, Displaced Persons and Refugees, etc.)

The NMCP provides support to understand community beliefs and actions and ensure that appropriate communication activities are implemented to support healthy community behavior, early care-seeking and health service use by the parents of a child with fever, or the appropriate use of preventive interventions such as ITNs.

5. Surveillance, Monitoring-Evaluation, Operational Research and Innovation

The Divisions Provinciales de la Sante and NMCP will improve their surveillance system to help the country collect, report, analyze and use information to optimize its operations. The NMCP will also strive to improve the surveillance system, including improving routine epidemiological surveillance, sentinel, cross-border surveillance and community-level surveillance. To improve routine monitoring, this may involve digitizing routine data at health facility and CCS levels. Sentinel sites will be added to the existing ones to cover priority areas and areas with high disease burden, to help bionomics and resistance to insecticide mapping as well as develop a map of *Anopheles* species. Cross-border surveillance will take place notably through the sentinel sites in the HZs bordering the nine targeted border countries.

Data and malaria interventions quality improvement will be done through various mechanisms: (i) the strengthening of the existing activity quality assurance and control system, (ii)

improvement of data collection and transmission, (iii) development or updating and popularization of standards and guidelines, (iv) carrying out supervision (using the health network quality improvement system tool) and monitoring, (v) training and (vi) retraining of staff.

Therapeutic efficacy studies conducted in 2020 at the six study sites noted an adequate non-correction clinical and parasitological response rate by PCR between 45 percent to 100 percent for the ASAQ combination, and between 47 percent to 95 percent for the AL. Clinical and parasitological responses seem the weakest for AL in Boende and Mikalayi, followed by Rutshuru, Kimpese and Kabondo. Clinical and parasitological responses seem the weakest for ASAQ in Boende and Rutshuru, followed by Mikalayi and Kimpese. In addition, the two ACTs introduced so far as first-line drugs are used similarly in both public and private facilities.

The study evaluating the therapeutic efficacy of the AP (Pyramax) combination and its safety in the DRC was not conclusive. Nevertheless, the trend towards increasing resistance to the usual antimalarials is still relevant even if the majority of new molecules are still effective, with the exception of AL.

IV. KEY MALARIA DATA

EVOLUTION OF KEY SURVEY BASED MALARIA INDICATORS

Table 3: Key Survey Indicators

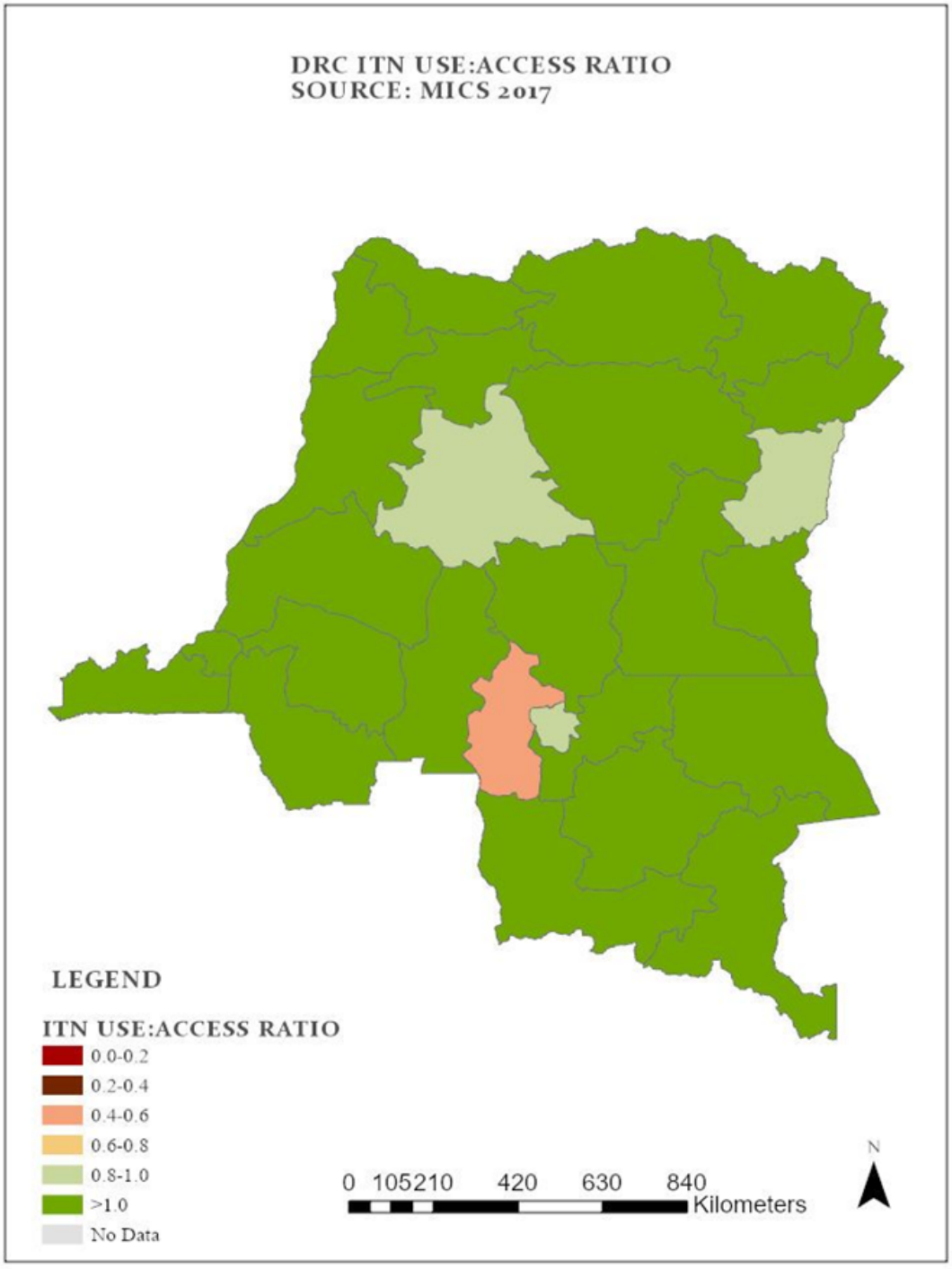
Indicator	2010 MICS	2013/14 DHIS	2017/18 MICS
% of Households with at least one ITN	51	70	63
% of Households with at least one ITN for every two people	N/A	25	26
% of Population with access to an ITN	30	47	44
% of Population that slept under an ITN the previous night	N/A	50	48
% of Children under five years of age who slept under an ITN the previous night	38	56	51
% of Pregnant women who slept under an ITN the previous night	43	60	52
% of Children under five years of age with a fever in the last two weeks for whom advice or treatment was sought	60	55	46
% of Children under five years of age with a fever in the last two weeks who had a finger or heel stick	17	19	22
% of 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

% of Women who attended four ANC visits during their last pregnancy	21	15	31
% of Women who received three or more doses of IPTp during their last pregnancy in the last two years	N/A	6	13
Children under five years of age mortality rate per 1,000 live births	158	104	70
% of Children under five years of age with parasitemia by microscopy	N/A	23	31
% of Children under five years of age with parasitemia by RDT	N/A	31	39

ACT: artemisinin-based combination therapy; ANC: antenatal care; DHS: Demographic and Health Survey; ITN: insecticide-treated mosquito net; IPTp: intermittent preventive treatment during pregnancy; MICS: Multiple Indicator Cluster Survey; MIS: Malaria Indicator Survey; RDT: rapid diagnostic test.

The map below shows that the ITN use:access ratio in all but four provinces is greater than 1. North Kivu, Kasai Oriental, and Tshuapa all have an ITN use:access ratio of .8-1 and Kasai Central province has an ITN use:access ratio of 0.4-0.6.

Figure 4. ITN Use:Access Ratio Map



Breakthrough ACTION, 2017[2]

[2] Koenker, H., Olapeju, B., Toso, M., Millward, J., & Ricotta, E. Insecticide-Treated Nets (ITN) Access and Use Report. Breakthrough ACTION and PMI VectorWorks projects, Johns Hopkins Center for Communication Programs. (Baltimore, Maryland, USA, Published August 2019. Updated April 2020) https://itnuse.org/.

Table 4.1: Evolution of Key Malaria Indicators Reported through Routine Surveillance Systems in DRC (All Provinces)

Indicator	2018	2019	2020	2021	2022
# of All-cause patient consultations	47,542,502	52,363,520	55,721,091	54,107,028	62,592,614
# of Suspect malaria cases[1]	28,692,269	32,090,801	33,022,283	32,255,995	38,385,397
# of Patients receiving diagnostic test for malaria[2]	25,486,440	29,162,093	30,199,299	29,820,807	37,425,744
# of Malaria cases[3]	23,250,194	25,093,356	25,673,369	25,289,018	29,454,820
# of Confirmed cases[4]	19,174,961	21,646,125	22,332,379	22,027,083	27,409,223
#of Presumed cases[5]	4,075,233	34,47,231	3,340,990	3,261,935	2,045,597
% of Malaria cases confirmed[6]	82.5%	86.3%	87.0%	87.1%	93.1%
Test positivity rate[7]	77.2%	76.0%	75.1%	74.5%	74.4%
Total # of malaria cases among children under five years of age[8]	9,290,693	10,587,221	10,735,450	9,970,900	12,739,943
% of Cases in children under five years of age[9]	40.0%	42.2%	41.8%	39.4%	43.3%
# of Severe cases[10]	1,905,162	2,061,486	2,154,798	2,126,079	2,402,735
# of Malaria deaths[11]	13,585	13,094	18,788	22,368	24,378
# of Facilities reporting[12]	16,325	16,902	17657	19054	20,006
% of Data completeness[13]	90.2%	93.5%	97.9%	98.5%	99.2%

(See notes below Table 4.2)

Table 4.2: Evolution of Key Malaria Indicators Reported through Routine Surveillance Systems (in DRC PMI-Supported Provinces)

Indicator	2018	2019	2020	2021	2022
# of All-cause patient consultations	16,376,722	17,152,043	19,597,326	18,923,134	21,347,155
# of Suspect malaria cases[1]	9,969,888	10,288,062	11,283,675	10,816,464	12,709,501
# of Patients receiving diagnostic test for malaria[2]	8,754,041	9,119,643	10,530,223	9,743,854	12,186,443
# of Malaria cases[3]	8,268,799	8,472,772	9,201,918	8,756,058	10,072,053
# of Confirmed cases[4]	6,550,380	6,885,024	8,095,396	7,370,452	9,129,068
# of Presumed cases[5]	1,718,419	1,587,748	1,106,522	1,385,606	942,985
% Malaria cases confirmed[6]	79.2%	81.3%	88.0%	84.2%	91%

Test positivity rate[7]	77.8%	78.2%	78.2%	77.4%	76%
# of malaria cases among children under five years of age[8]	3,344,464	357,6011	4,167,305	3,636,085	4,548,756
% Cases in children under five years of age[9]	40.4%	42.2%	45.3%	41.5%	45%
# of Severe cases[10]	721,110	763,371	807,285	792,465	848,767
# of Malaria deaths[11]	5707	5,334	5,812	7,175	6,448
# of Facilities reporting[12]	5565	5,658	6,000	6,526	6,738
% of Data completeness[13]	88.0%	89.5%	95.3%	96.9%	99%

[1] Number of patients presenting with signs or symptoms possibly due to malaria (that is all cases of 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] # of 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 # cases among children under five years of age divided by total # of cases.
[10] Severe malaria cases reported to the health management information system are malaria cases with danger signs.
[11] All ages, outpatient, inpatient, confirmed, and unconfirmed.
[12] Total # of health facilities reporting data into the health management information system/DHIS2 system that year.
[13] # monthly reports from health facilities divided by # health facility reports expected (average for the calendar year).

Table 5.1 : Disaggregated Community-Level Data through Routine Surveillance Systems in DRC (All Provinces)

Indicator	2019	2020	2021	2022
# of Patients receiving diagnostic test for malaria from a CHW	2,180,918	2,162,408	2,108,595	3,099,024
# of Malaria cases reported by CHWs[1]	1,672,171	1,653,173	1,600,758	2,354,262
% of CHW reported cases (among total malaria cases)[2]	6.7%	6.4%	6.3%	8.0%

[1] Includes all ages, confirmed and unconfirmed.
[2] Total # of malaria cases reported by CHWs/Total # of malaria cases in the previous table.

Table 5.2 Disaggregated Community-Level Data through Routine Surveillance Systems in DRC PMI-Supported Provinces

Indicator	2019	2020	2021	2022
# of Patients receiving diagnostic test for malaria from a CHW	294,928	358,085	296,944	507,018
Total # of malaria cases reported by CHWs[1]	241,725	293,221	240,068	405,614
% of CHW reported cases (among total malaria cases)[2]	2.9%	3.2%	2.7%	4.0%

[1] Includes all ages, confirmed and unconfirmed.
[2] Total # malaria cases reported by CHWs/Total # malaria cases in the previous table.
CHW: community health worker.

V. Other Implementation Information

Table 6: Results of Durability Monitoring

Site/Net	Survey round and time since distribution (months)	Attrition wear and tear (%)	Remaining nets in serviceable condition % (N)	Chemical content N (95% CI)
Kalemie	Baseline (4.1)	1.2%	97.3% (N=361)	[a]4.51 (4.14-4.88)
SafeNet (alpha-cypermethrin)	12m (13.4)	8.1%	84.8% (N=235)	[a]2.30 (1.71-2.89)
	24m (26)	37.7%	68.8% (N=88)	---
Manono/ Veeralin (alpha-cypermethrin + PBO)	Baseline (4.2)	0.0%	98.2% (N=389)	[a] 6.20 (5.93-6.47); [b]1.42(1.38-1.46)
	12m (13.7)	3.2%	95.5% (N=252)	[a]3.79 (3.34-4.24); [b]0.77(0.63-0.91)
	24m (26)	20.7%	78.7% (N=100)	*

[a] Alpha-cypermethrin content.
[b] Piperonyl butoxide (PBO) content on the roof and side panels.
* Data will be added when results are available.

Table 7: Summary of Completed Therapeutic Efficacy Studies

Year	Site	Treatment arm(s)	Efficacy (PCR-corrected adequate clinical and parasitological result) for each drug at each site
2017-2018[1]	Kabondo	AL	98% (95, 100)
2017-2018[1]	Kapolowe	AL	94% (89, 99)
2017-2018[1]	Kimpese	AL	96% (92, 100)
2017-2018[1]	Mikalayi	AL	86% (79, 93)
2017-2018[1]	Rutshuru	AL	96% (92, 100)
2017-2018[1]	Kabondo	ASAQ	100% (100, 100)
2017-2018[1]	Kapolowe	ASAQ	100% (100, 100)
2017-2018[1]	Kimpese	ASAQ	99% (98, 100)
2017-2018[1]	Mikalayi	ASAQ	96% (91, 99)

2017-2018[1]	Rutshuru	ASAQ	91% (85, 98)
2017-2018[1]	Kabondo	DP	100% (99, 100)
2017-2018[1]	Kapolowe	DP	93% (87, 99)
2017-2018[1]	Kimpese	DP	100% (99, 100)
2017-2018[1]	Mikalayi	DP	84% (75, 93)
2017-2018[1]	Rutshuru	DP	95% (90, 100)
2021-2022	Mikalayi, Rutshuru, Kimpese, Kabondo, Boende	AL, ASAQ	TBD
2022-2023	Kalima/Kindu,Vanga, Kimpese, Kapolowe	AL, ASAQ	TBD

AL: artemether-lumefantrine; ASAQ: artesunate-amodiaquine; DP: dihydroartemisinin- piperaquine; TBD: to be determined; PCR: polymerase chain reaction.
For artemisinin-based combination therapy (ACTs) with a failure rate > 10% (including both upper and lower bounds of the 95% confidence interval), alternative ACTs should be considered or, at the very least, confirmatory studies should be performed.
[1] Moriarty LF, et al. Decreased efficacy of artemisinin-based combination therapies in Democratic Republic of the Congo and investigation of molecular markers of antimalarial resistance. Am. J. Trop. Med. Hyg., 105(4), 2021, pp. 1067–1075. For ACTs with a failure rate > 10% (including both upper and lower bounds of the 95 percent confidence interval), alternative ACTs should be considered or, at the very least, confirmatory studies should be performed.

VI. Key Policies

Table 9: Policies in DRC

National Malaria Strategic Plan 2016-2020 **National Strategic Plan 2024- 2028** (Not yet finalized)	
National SM&E Plan: Integrated in the National Strategic Plan 2026-2020 and is being integrated in the National Malaria Strategic Plan 2024-2028	
National Digital Health Strategy 2020-2024	
National Social Behavior Change Strategy (Mars 2024-2028) (Not yet finalized)	
National Supply Chain Strategy/Master Plan 2021-2020	
National Vector Control Strategy and/or Integrated Vector Management Plan (Not publically available)	
Malaria Case Management Policy (NA)	
What is/are the first-line treatment(s) for uncomplicated *P. falciparum* malaria*?	Artesunate-amodiaquine, Artemether-lumefantrine, Artesunate-pyronaridine (Pyramax) *Note: Pyramax is approved for use in DRC but has not yet been procured by the government or donors*
What is/are the second-line treatment(s) for uncomplicated P. falciparum malaria*?	Quinine-clindamycin

What is/are the first-line treatment(s) for uncomplicated *P. vivax* malaria?	N/A
What is the first-line treatment for severe malaria?	Injectable artesunate
In pregnancy, what is the current first-line treatment for uncomplicated *P. falciparum* malaria in the first trimester?	Quinine tablet + Clindamycin for 7 days (Use of ACTs in the first trimester is not currently recommended in DRC.)
Given the WHO policy change to recommend AL as treatment for uncomplicated malaria in the first trimester, does the MOH plan to update the policy on treatment of MIP in the first trimester? And if so, what is the status of this policy change and implementation of the new policy?	
In pregnancy, what is/are the first-line treatment(s) for uncomplicated *P. falciparum* malaria in the second and third trimesters?	First-line ACTs (see above)
What is/are the first-line treatment(s) for *P. vivax* malaria during pregnancy?	N/A
In pregnancy, what is the first-line treatment for severe malaria?	1st trimester: Quinine infusion followed by quinine tablets combined with clindamycin hydrochloride 2nd & 3rd trimester: Injectable artesunate followed by ACT
Is pre-referral treatment of severe disease recommended at peripheral health facilities? If so, with what drug(s)?	Yes; rectal artesunate or intramuscular injectable artesunate
Is pre-referral treatment of severe disease with rectal artesunate recommended for community health workers?	Yes (though implementation is inconsistent)
Community Health Policy (N/A)	
What is the # of CHWs currently providing iCCM?	The DRC currently has 4,364 CHWs providing services in 3,115 community care sites.
What is the country's target for the number of CHWs providing iCCM?	The country's estimated target for CHWs is 43,180. Country norms recommend two CHWs per community care site with an estimated need for 21,590 sites, but often there is only one CHW per site.
What percent of the country's target is met?	10%
Does the country have a policy that enables the routine, regular payment of salaries/stipends for CHWs?	No
Do CHWs have the authority to test and treat all ages for malaria?	Yes (though this is not operationalized in all areas)

Prevention of Malaria in Pregnancy Policy (2017 -2020) (Not publically available)	
At what gestational age is the first dose of IPTp-SP to be given to pregnant women according to the national guidelines for malaria and MCH?	Between the 13th week and 16th week
Do the national ANC guidelines reflect the WHO 2016 recommendation of eight ANC scheduled contacts (plus one additional contact for early initiation of IPTp at 13-16 weeks)? If not, how many ANC contacts are recommended?	Yes
What is the status of training ANC providers on the WHO recommended 8+ contacts?	ANC Providers have been and continue to be trained on WHO recommended 8+ contacts.
Have HMIS/DHIS2 and ANC registers been updated to include 8+ contacts?	Providers collected IPTp data as single months where the January 2022 data represent the number of doses administered in January
Are ANC/IPTp data collected as single months where the January 2022 data represent the number of doses administered in January 2022, or cohort data, representing the cumulative data from pregnancies which began 6 months prior?	Providers collected IPTp data as single months where the January 2023 data represent the number of doses administered in January
Is ANC/IPTp provided by facility staff conducting ANC outreach to communities?	Yes
Can CHWs deliver IPTp and if so, which specific cadres and beginning with which dose?How many districts are targeted for c-IPTp implementation?	A pilot has been implemented in the three health zones of three Global Fund supported provinces. Recommendations have been made to go to scale, but the guidelines haven't yet been updated.

ACT: artemisinin-based combination therapy; AL: artemether-lumefantrine; ANC: antenatal care; CHW: community health worker; DHIS: demographic health information system; iCCM: integrated community case management; IPTp: intermittent preventive treatment during pregnancy; HMIS: health management information system; SP: sulfadoxine-pyrimethamine; WHO: World Health Organization.

VII. PARTNER LANDSCAPE

Table 10 below summarizes contributions by key external partners and the government partner country governments in calendar years 2020-2022, providing insight into total country investments. As new grants funded through the Global Fund 2021-2023 grant cycle will end soon, Global Fund country investments will be determined through the Grant Cycle 7 process. The Government of DRC 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.

Between 2020-2022, the Against Malaria Foundation provided bednets to DRC to enable the country to meet the ITN needs to achieve universal bednet coverage to reduce malaria transmission in the DRC.

Table 10: Partner Landscape

Partner	Key technical interventions	Geographic coverage	Funding amount or in-kind contribution	Timeframe
Global Fund /SANRU	Vector Control; case management; support for nationwide mass campaign in 2021; procurement of national needs for SP; monitoring and evaluation and research; cross-cutting human training and supportive	National for ITN campaign 17 of 26 provinces	$125,267,478	Current grant covers 2021 to 2023
Global Fund /CAGf	Case investigation; sentinel site supervision; entomological investigation; sentinel site review	Country-wide	$8,380,000	Current grant covers 2021 to 2023
Against Malaria Foundation	Procurement of ITNs	All provinces	$32,000,000	NA
WHO	Advocacy campaign	Country wide	$328,000	2022-2024
PATH	Training Surveillance, Monitoring	Haut Katanga	$1,198,000	Ongoing
CHAI	Develop and disseminate national directive of entomological surveillance and a system of electronic reporting; develop entomological training material and training selected HF in entomological surveillance	26 provinces and selected Health Facilities	~$173,000	NA
London School of Tropical Medicine and Hygiene	Entomological monitoring; larval sites in Lwiro region and mining site of Luhihi, Feeding behavior on primates and sensitivity to plant products	Sud Kivu Province	~$74,000	Not yet started
NIH/KSPH/ University of North Carolina	Longitudinal study of vectors in Maluku Health Zone	NA	NA	NA
MITTSUI Corporation	Test on new insecticides	NA	NA	NA

Tropical Medicine/ Universite de Mbandaka	Monitoring of vector population in Mbandaka; monitoring of insecticide resistance of *An. coluzzi* in Kindele	Mbandaka, Kindele	NA	NA
Tenke Fungurume Mining	IRS, larval surveillance and insecticide resistance monitoring and aerial spraying, ITN distribution	HZ Fungurume	$215,790	Ongoing
Oxford University	Humbug: Developing mosquito management tools for developing countries	Kinshasa	NA	NA
Government of DRC	Vector control; case management; support for nationwide mass campaign in 2021; procurement of national needs for SP; monitoring and evaluation and research; cross-cutting human resource training and support	Country-wide	$1,427,000	Ongoing

ITN: insecticide-treated mosquito net; HF: health facility; SP: sulfadoxine-pyrimethamine.