# REVIEW OF MONITORING OF MALARIA IN PREGNANCY THROUGH NATIONAL HEALTH MANAGEMENT INFORMATION SYSTEMS: MALI

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The findings of this review are based on Mali's Health Management Information System forms that were collected and reviewed during the period of October 2012–March 2013. Every attempt was made to get the latest tools available. Qualitative information included in this report was collected during key informant interviews conducted from October–November 2013.
This report was compiled by the Maternal and Child Health Integrated Program (MCHIP) for review by the President's Malaria Initiative and Roll Back Malaria Initiative.

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MCHIP is the USAID Bureau for Global Health's flagship maternal, neonatal, and child health program. MCHIP supports programming in maternal, newborn, and child health, immunization, family planning, malaria, nutrition, and HIV/AIDS, and strongly encourages opportunities for integration. Cross-cutting technical areas include water, sanitation, hygiene, urban health, and health systems strengthening.

MCSP is a global USAID cooperative agreement to introduce and support high-impact health interventions in 24 priority countries with the ultimate goal of ending preventable child and maternal deaths (EPCMD) within a generation. MCSP supports programming in maternal, newborn and child health, immunization, family planning and reproductive health, nutrition, health systems strengthening, water/sanitation/hygiene, malaria, prevention of mother-to-child transmission of HIV, and pediatric HIV care and treatment. MCSP will tackle these issues through approaches that also focus on health systems strengthening, household and community mobilization, gender integration and eHealth, among others. Visit www.mcsprogram.org to learn more.

# Table of Contents

# Abbreviations

| | |
|---|---|
| ACT | Artemisinin-Based Combination Therapy |
| ANC | Antenatal Care |
| AS-AQ | Artesunate-Amodiaquine |
| ASC | *Agent de Santé Communautaire* (Community Health Worker) |
| ATN Plus | Assistance Technique National Plus |
| CDC | United States Centers for Disease Control and Prevention |
| CPS | *Cellule de Planification et de Statistique* (Planning and Statistics Unit) |
| CSCOM | *Centre de Santé Communautaire* (Community Health Center) |
| CSREF | *Centre de Santé de Référence* (District-Level Referral Health Center) |
| DHS | Demographic and Health Surveys |
| DNS | *Direction Nationale de la Santé* (National Health Directorate) |
| DSR | *Division Santé Reproductive* (Reproductive Health Division) |
| HIS | Health Information System |
| HMIS | Health Management Information System |
| HMM | Home-Based Management of Malaria |
| IDSR | Integrated Disease Surveillance and Response |
| IPTp | Intermittent Preventive Treatment of Pregnant Women |
| IRS | Indoor Residual Spraying |
| ITN | Insecticide-Treated Bed Net |
| LLIN | Long-Lasting Insecticide-Treated Net |
| M&E | Monitoring and Evaluation |
| MCHIP | Maternal and Child Health Integrated Program |
| MICS | Multi-Indicator Cluster Survey |
| MIP | Malaria in Pregnancy |
| MOH | Ministry of Health |
| MOP | Malaria Operational Plan |
| NMCP | National Malaria Control Program |
| POC | Point of Contact |
| PMI | President's Malaria Initiative |
| RBM | Roll Back Malaria |
| RDT | Rapid Diagnostic Test |
| RTA | *Rapport Trimestriel d'Activités* (Quarterly Report) |
| SLIS | *Système Local d'Information Sanitaire* (Health Management Information System) |
| SMS | Short Message Service |
| SP | Sulfadoxine-Pyrimethamine |
| UNICEF | United Nations Children's Fund |
| USAID | United States Agency for International Development |
| WHO | World Health Organization |

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# Introduction

The Maternal and Child Health Integrated Program (MCHIP) works closely with the President's Malaria Initiative (PMI) and the Roll Back Malaria (RBM) Partnership community including key stakeholders in maternal health and child health to support the reduction in the global burden of malaria morbidity and mortality. MCHIP does this by helping to improve the quality of malaria programs, strengthening health systems, and helping countries achieve sustained results. A critical aspect of health systems strengthening is ensuring that appropriate high quality data on malaria service delivery are available to policymakers and program managers.

Obtaining reliable, valid, and timely malaria service data, especial data related to the control of malaria in pregnancy (MIP) is challenging. Although population-based MIP indicators are very useful, the timing of population-based surveys, which general occur every two to five years, is too infrequent for program monitoring. National health management information system (HMIS) data are more frequently collected, complement survey data, and have the potential to be more useful for ongoing service improvement and decision-making. However, the quality of HMIS data in low-income settings is poor; often data are missing, report formats are outdated, and reporting is late. Furthermore, it is not widely known what data are being recorded at the facility level, what data are reported up through the health system, and whether those data are being used at the facility.

MCHIP, with support from PMI, decided to conduct a review of national HMIS in a sample of six PMI focus countries to improve our understanding of how ministries of health (MOHs)—both national malaria control programs (NMCPs) and reproductive health (RH) units—are monitoring and reporting on their MIP-related program results and how the data are being used. This activity will provide specific recommendations for improving MIP-related, routine data collection and use. This activity fits within a larger review of routine maternal and newborn data collection systems by MCHIP in the same six countries and additional non-PMI/ non-malaria endemic countries.

PMI countries selected for this review include Kenya, Malawi, Mozambique, Mali, Tanzania, and Uganda. Each of these countries is among the 19 focus countries benefiting from PMI, which is implemented by the United States Agency for International Development (USAID) in partnership with the United States Centers for Disease Control and Prevention (CDC). The review focuses on the public sector and examines how HMIS and supplemental routine data collection and reporting strategies are used at different levels of the health system to capture MIP indicators. The review describes MIP information, data quality gaps, and best practices.

This report presents findings from the review, recommendations on priority indicators that should be monitored at the facility level, and data collection formats, as well as ways to interpret and use data to improve services and ways to report data up through the health system. Information from this report, along with the other five country reviews, will be used to propose revisions to the World Health Organization (WHO)/RBM manual, *MIP: Guidelines for Measuring Key Monitoring and Evaluation Indicators*.

The findings and recommendations from this review will be shared with the countries to help improve their routine monitoring systems. Findings and recommendations will also be shared with PMI, as well as the RBM MIP working group and RBM Monitoring and Evaluation (M&E) Group, for further review, discussion, and development of final recommendations for global and country levels.

# Background

## MALARIA SITUATION IN MALI

In Mali, malaria is endemic to the central and southern regions (where about 90% of Mali's population lives), and is epidemic in the north depending upon viability of *Anopheles* species in the desert climate. Malaria transmission varies in each of the five geo-climatic zones. It occurs year-round in the Sudano-Guinean zone in the south, with a seasonal peak between June and November. The transmission season is shorter in the northern Sahelian Zone, lasting approximately three to four months (July/August to October). Malaria transmission is endemic in the Niger River Delta and areas around dams with rice cultivation, and is endemic with low transmission in urban areas, including Bamako and Mopti. Epidemics also occur in the north (Timbuktu, Gao, and Kidal Regions) and in the northern districts of Kayes, Koulikoro, Segou, and Mopti Regions; the last identified epidemic was in September 2003 in Timbuktu.

In 2012, there were 2,171,739 clinical cases of malaria (1,508,672 uncomplicated cases and 663,067 serious cases) with 1,894 deaths (Statistical Yearbook, 2012), according to health facility information. Children under five years of age and pregnant women are the most affected by this disease.

Malaria during pregnancy is an important public health problem that can result in maternal anemia, abortion, stillbirth, prematurity, intrauterine growth retardation, and low birth weight. Anemia is often caused by malarial infection; severe maternal anemia increases the risk for maternal mortality.[1] According to the Demographic and Health Survey (DHS) of Mali (DHS V, 2012-2013), 51% of women suffer from anemia: 37% suffer from mild anemia, 13% moderate anemia, and 1% severe anemia. Malaria control and elimination is one of the priorities of the Government of Mali, thus, it continues to occupy a prominent place in the national health policy.

The national malaria policy document on MIP was developed in 2003. At the time of this review, there was a plan to update the document in 2014. The preliminary malaria prevalence data from the DHS V were released to the MOH in May 2013. It is important to note that unlike the 2001 and 2006 DHS, the three northern regions of Mali (Gao, Timbuktu, and Kidal) were not included in the 2012 survey. Further analysis will be necessary to determine how the national level malaria data can be interpreted given that the north was not included in 2012. Since the last DHS was conducted in 2006, Mali has demonstrated significant progress in scaling-up malaria control interventions, especially in vector control. Data from a nationwide malaria survey conducted in September–October 2010 demonstrated achievement of some of Africa's highest rates of insecticide-treated bed net (ITN) ownership and use. Household ownership of at least one ITN increased from 50% in 2006 to 85% in 2010. However, prompt case management with an artemisinin-based combination therapy (ACT) remained low at 8%. In addition, parasite prevalence by microscopy in 2010 appeared high at 38%, though no national-level baseline data are available for comparison.

To reduce MIP, it is recommended that pregnant women not only sleep under a mosquito net impregnated with insecticide but also take intermittent preventive treatment with sulfadoxine-pyrimethamine (SP) during pregnancy. During the DHS V, all women who had a birth in the past five years were asked if, during the most recent pregnancy, they had taken drugs to prevent malaria and, in the case of a positive response, which drug and dosage. During the DHS 2012–2013, only 66% of mothers with recent births took preventive antimalarial drugs during

[1] Newman, Robert D., Allisyn C. Moran, Kassoum Kayentao, Elizabeth Benga-De, Mathias Yameogo, Oumar Gaye, Ousmane Faye, et al. 2006. "Prevention of Malaria During Pregnancy in West Africa: Policy Change and the Power of Subregional Action." *Tropical Medicine & International Health* 11:462–9.

pregnancy: 86% in urban areas and 61% in rural areas. These data are opposite of what was seen for the use of long-lasting insecticide treated nets (LLINs) and indoor residual spraying. Only 20% of pregnant women were given two doses of SP for intermittent preventive treatment of pregnant women (IPTp); 37% in urban areas and 16% in rural areas.

During the 2006 DHS, only 4% received the recommended two doses of SP at antenatal care (ANC) visits during their pregnancy, despite high ANC attendance rates by pregnant women of 72% for at least one visit and 63% for two or more visits. The DHS V states that 37.9% of pregnant women in Bamako area received SP during one ANC visit in the two years preceding the survey. The Assistance Technique National (ATN) Plus report[2] on barriers of IPTp use during ANC visits provided explanations on low IPTp use: cultural barriers (need husband's permission), misperceptions of "the three white tablets," and women arrived early at the health facility and did not want to take tablets on an empty stomach. Also, some lack of supplies occurred during the suspension of activities by the Global Fund to Fight AIDS, Tuberculosis, and Malaria (Global Fund). Table 1 below summarizes Mali's statistics from national surveys and HMIS reports on pregnant women receiving two doses of IPTp and using ITNs. A complete list of tables is in Annex 1.

**Table 1. MIP in National Surveys and Annual HMIS Report**

| | IPTp2 UPTAKE | ITN USE BY PREGNANT WOMEN |
|---|---|---|
| DHS 2006 | 11.2% | 28.9% |
| MICS 2010 | No existing data | 55% |
| HMIS 2011* | 36% | No existing data |
| DHS 2012–2013 | 20% | 78% |

Source: Système Local d'Information Sanitaire. 2011. *Annuaire Statistique 2011.*

IPTp2: Intermittent preventive treatment of pregnant women, second dose; ITN: Insecticide-treated bed net; MICS: Multi-Indicator Cluster Survey.

## WORLD HEALTH ORGANIZATION AND MALI MALARIA MONITORING AND EVALUATION RECOMMENDATIONS

**WHO Updated Policy Recommendation (October 2012)**

- In areas of moderate-to-high malaria transmission, IPTp with SP is recommended for all pregnant women at each scheduled ANC visit. WHO recommends a schedule of four ANC visits.
- The first IPTp-SP dose should be administered as early as possible during the second trimester of gestation.
- Each SP dose should be given at least one month apart.
- The last dose of IPTp with SP can be administered up to the time of delivery, without safety concerns.

The WHO Evidence Review Group meeting, held in July 2012, resulted in new recommendations for frequency and timing of IPTp-SP (that is, IPTp using SP) dosing, based on review of the latest evidence of the efficacy of IPTp-SP. The recommendations were presented to the WHO Malaria Policy Advisory Committee in September 2012 and adopted as the *Updated WHO Policy Recommendation* on IPTp-SP in October 2012.[3] To help facilitate MIP program implementation, it is important to have harmonization of country policies, guidelines, training, and supervision materials between RH and malaria control. In light of the *Updated WHO Policy Recommendation* and recognizing that many

[2] Assistance Technique National Plus (ATN Plus), United States Agency for International Development (USAID)/Centers for Disease Control and Prevention (CDC)/President's Malaria Initiative (PMI). 2013. *Rapport de Recherche: Les obstacles à l'utilisation du traitement préventif intermittent (TPI) à la Sulfadoxine Pyriméthamine (SP) par les prestataires pendant la consultation prénatale recentrée (CPNR) au Mali*. Mali: ATN PLUS, USAID/CDC/PMI.

[3] World Health Organization and Global Malaria Programme. 2012. *Updated WHO Policy Recommendation (October 2012): Intermittent Preventive Treatment of Malaria in Pregnancy Using Sulfadoxine-Pyrimethamine (IPTp-SP)*. http://www.who.int/malaria/iptp_sp_updated_policy_recommendation_en_102012.pdf.

countries will need to revise their national-level documents to disseminate the new guidance, MCHIP conducted a systematic review of national-level MIP policies and guidance documents in Kenya, Mali, Mozambique, Tanzania, and Uganda.[4] The purpose of the policy review was to increase our understanding of each country's MIP guidance for health workers and to find any inconsistencies that may exist between WHO and country guidance as well as between RH programs and malaria programs at the country level. The report of the national-level MIP policies and guidance review recommends specific actions at the country level for removing inconsistencies and complements the HMIS review presented in this report.

Following the strategic changes in the overall context of the fight against malaria and WHO recommendations, the MOH, in collaboration with its partners, decided to revise its national policy in September 2013. Regarding the MIP component, an ambitious goal has been set, aiming for 80% of pregnant women living in stable transmission zones to receive three doses of IPTp during ANC and universal coverage with LLINs. As noted in the PMI Malaria Operational Plan (MOP) FY14, "In October 2012, WHO changed its recommendations for IPTp to administering a dose of SP at every ANC visit after quickening. Much of the original research behind this policy change occurred in Mali, so Mali became an early adopter of the new recommendations and revised the national policy in November 2012."

The NMCP developed a new M&E plan for 2013–2017, which was validated in September 2013, in collaboration with partners, in accordance with the "three ones concept" (one coordination mechanism, one strategic plan, and one M&E plan). M&E of malaria control interventions must be done through the framework and entities of the *Programme de Développement Sanitaire et Social* (National Health and Social Development Program). Management of information on malaria is done in collaboration with all stakeholders involved in the supervision of the steering committee for the implementation of the fight against malaria. Disseminating the results of the program occurs periodically with the different stakeholders, partners, and decision-makers.

# Methods

## DESK REVIEW

For each country review, MCHIP field offices collected HMIS forms. A content analysis was done on these forms to determine what was being monitored and reported related to MIP. Second, in each country, a review was conducted of national policies, strategies, guidelines with information related to MIP M&E, as well as technical reports, publications, and web materials related to MIP. The following documents were reviewed:

- Annual HMIS Report 2011
- ANC Register
- Outpatient curative care register
- Inpatient registers
- Facility monthly report
- Quarterly district report
- NMCP M&E Plan 2013–2017

[4] Gomez, Patricia, Aimee Dickerson, and Elaine Roman. 2012. *Review of National-Level Malaria in Pregnancy Documents in Five PMI Focus Countries*. Baltimore, MD: Jhpiego Corporation. http://www.mchip.net/sites/default/files/mchipfiles/MIP%20in%20Five%20African%20Countries.pdf.

- Strategic Plan for the Fight Against Malaria 2010–2014
- DHS 2006
- DHS 2012–2013 (preliminary data)
- Multi-Indicator Cluster Survey (MICS) 2010
- RBM Mali Roadmap 2011
- PMI MOP FY13
- National Policy for the Fight Against Malaria
- Global Fund M&E Strengths, Weaknesses, Opportunities, and Threats Analysis
- Malaria Indicator Survey 2009

### KEY INFORMANT INTERVIEWS

The findings of the desk review were used to tailor interviews that were conducted in each country. In-country interviews were conducted with key stakeholders at the national, district, and facility levels. At each level, efforts were made to glean the perspective from three key areas: malaria, RH, and HMIS. At the national level, interviews were held with staff from malaria control programs, RH units, and HMIS, as well as with malaria partners, including PMI; WHO; The Global Fund to Fight AIDS, Tuberculosis and Malaria (Global Fund); and nongovernmental organizations funded to support the MOH in strengthening malaria programs. Interviews were conducted at four health facilities in two regions: Bamako and Koulikoro. Two health facilities were selected in each region (one in the peripheral community level and one in the reference/district level). A list of interviewees is in Annex 2. The questions discussed during the interviews are included in the interview guides in Annex 3.

# Findings

## HEALTH MANAGEMENT INFORMATION SYSTEM STRUCTURE AND FUNCTION

There is an HMIS at the National Health Directorate and regional databases at the Regional Directorates of Health. The HMIS compiles and analyzes district data. The type of software used is DESAM III.

Routine data are collected at health facilities, and then transmitted from the peripheral level to the national level. The data collection, processing, and analysis within the national HMIS are organized according to four levels:

- Peripheral level or community level data play a role in planning, organization, implementation, and monitoring of operations at the peripheral level. Health community centers are the first level of HMIS data collection, storage, and analysis. Information is sent using quarterly reports to the district. The community health center provides a minimum health package. In Mali, the majority of ANC takes place in the community and districts health centers, which are the first and second level of the health pyramid. It should be noted that there are private and faith-based clinics offering ANC that are run by Catholic organizations.

- Reference/district level data sent by the various health facilities in the district are compiled with those of the reference center, synthesized, and analyzed. Information is sent using quarterly reports to *centre de santé de référence* (CSREF) (district-level referral health center), which enters the data using the local information system (DESAM) and checks, analyzes, and transmits the data to the regional level in the form of a hard copy and an electronic copy of the *rapport trimestriel d'activités* (RTA) (quarterly report). Feedback is given to the *centres de santé communautaire* (CSCOMs) (community health centers) to crosscheck differences between hard and soft copies. The district level provides training and monitoring of community health centers.
- Intermediate or regional levels provide technical support to the district level. The Regional Health Directorate turns to the updated tables, and then verifies, analyzes, and interprets data to guide decision-making. It sends a copy of the RTA and the electronic copy of the tables to the National Board of Health and sends the information back to the district to compare to deviations. It provides training and monitoring to districts and health facilities.
- The central or national level plays a role in design, strategic support, evaluation, resource mobilization, and policy decisions. It provides training and monitoring of regions and districts. The tables received from regions are subject to verification, data entry using DESAM, analysis, and interpretation. RTAs are archived at the local HMIS and are used for the statistical year book. Other analysis software (Epi Info and Health Mapper) are used at this level for data analysis. The information is aggregated and used for decision-making. Feedback is sent to the regional health directorate and district level before transmission to the HMIS, *Cellule de Planification et de Statistique* (CPS) (Planning and Statistics Unit), and partners.

Monitoring is institutionalized in Mali. It allows the community health center, with the participation of the community and community health association's peer community worker, to measure progress in achieving agreed-upon objectives and identify shortcomings, and to locate and seek solutions. Participatory and educational dimensions of this ongoing monitoring contribute to the effective implementation of solutions.

## MALARIA IN PREGNANCY INDICATORS IN NATIONAL PLANS, HEALTH MANAGEMENT INFORMATION SYSTEM REGISTERS, AND REPORTS

In general, M&E for MIP is addressed throughout key policy documents (see Table 2).

**Table 2. MIP in Key Policy and Guidance Documents in 2013**

| COUNTRY | NATIONAL MALARIA CONTROL STRATEGIC PLAN INCLUDES M&E | NATIONAL M&E PLAN INCLUDES MIP | TRAINING ON M&E FOR MIP | NATIONAL REPORT INCLUDES MIP | IS MIP WITH DIRECTLY OBSERVED THERAPY NATIONAL POLICY? |
|---|---|---|---|---|---|
| **Mali** | Yes | New M&E Plan 2013–2017 includes IPTp 3 and ITN | Guidelines available in the field<br>ATN Plus produced guidelines in focused antenatal care | Yes for MOP, NMCP policy document | Yes |

The new 2013–2017 M&E plan developed by the NMCP, which was validated in September 2013, takes into account the main pillars of the program, including MIP. The M&E plan includes two indicators for MIP: 1) Proportion of pregnant women who slept under an LLIN the night before the survey—to be measured by survey—and 2) Proportion of pregnant women who received at least 3 doses of IPT during their last pregnancy with a live birth—to be measured by

the local health information system (HIS). These indicators do not have specific definitions. Given the language of the IPTp3 indicator of "during their last pregnancy with a live birth", this indicator sounds as if it should be collected by survey when the data source is the routine HIS. These indicators can become very confusing when trying to operationalize this plan.

One thing that has been lacking in the M&E plan is a clear statement of the evaluation plan. Although this plan specifically addresses activities, outputs, and outcomes associated with NMCP, specific strategies to evaluate MIP efforts could have been stronger.

## Health Management Information System Content

Routine data related to MIP are collected in different tools: data related to preventive measures for MIP are collected through the ANC registers and monitoring sheets of pregnancy at the community and district levels. As for the malaria case management during pregnancy, data appear in outpatient's curative care registers, in the custody or emergency registers (for women who have fever and came to community or district centers at late hours), and inpatient registers at the district level. These data provided by *agent de santé communautaire* (ASC) (community health worker), private and faith-based clinics, and community and district levels are recorded in the RTA. Table 3 describes the MIP data available in the HMIS tools across these various levels.

**Table 3. MIP Data Captured in HMIS Tools**

| MALI TOOL | IPTP DOSE NOT NOTED | IPTP1 | IPTP2 | ITN GIVEN | ASKED IF SLEPT UNDER ITN | DIAGNOSIS RDT | DIAGNOSIS MICROSCOPY | MALARIA TREATMENT |
|---|---|---|---|---|---|---|---|---|
| ANC register | N/A | Yes | Yes | Yes | N/A | No | No | General treatment field available. Malaria treatment field not available. |
| Curative care register (for outpatients) | No | No | No | No | Yes | Yes | Yes | Treatment field available. |
| Inpatient registers | N/A | Yes | Yes | Yes | Yes | Yes | Yes | Treatment field available. |
| Pregnancy follow-up form | No | Yes | Yes | | Yes | No | No | Open field for notes/treatments |
| Quarterly report (RTA) | Yes | Yes | Yes | Yes | No | No | No | Treatment not noted |
| Monthly report (Canevas mensuel de collecte des informations) | No | No | No | No | No | Yes | Yes | Treatment for ACT available |
| Annual HMIS Report ("Annuaire SLIS") | No | Yes (in addition, the rate of IPTp1 is collected) | Yes (in addition, the rate of IPTp2 is collected) | Yes | No | No | No | Treatment field available |
| CSCOM malaria control data collection form (supported by Global Fund) | Yes | Yes | Yes | No | N/A | Yes | Yes | Malaria case management noted |

RDT: Rapid Diagnostic Test; SLIS: *Système Local d'Information Sanitaire.*

Other ANC data elements relevant to MIP are captured through the ANC register and the community-level pregnancy monitoring sheets (see Table 4).

**Table 4. Other ANC Indicators Relevant to Control of MIP**

| DOES THE FORMAT HAVE A PLACE TO RECORD THE FOLLOWING INFORMATION? | ANC REGISTER | COMMUNITY-LEVEL PREGNANCY MONITORING SHEETS | HMIS HOSPITAL OUTPATIENT MONTHLY REPORT |
|---|---|---|---|
| Completion instructions included | No | No | No |
| ANC visit | 1,2,3,4+ | Recorded | Recorded |
| Gestation of pregnancy at visit (in weeks) | Yes | Recorded | Not recorded |
| Iron/folate given | Yes/ No | Recorded # of iron and folate given separately | Not recorded |
| Hemoglobin, packed cell volume recorded | Not recorded | Not recorded | Not recorded |
| HIV testing done – pregnant woman | Not recorded | Not recorded | Not recorded |
| Prevention of Mother-to-Child Transmission – On Cotrimoxazole (prevention of opportunistic infections) | Not recorded | Not recorded | Not recorded |

## DATA FLOW AND REPORTING PROCESS

The national HMIS, at its decentralized level, is collecting data on MIP through quarterly reports. The system for collecting and analyzing data on MIP is partially integrated into the national HIS. A paper-based HIS has been created and implemented. Data are flowing to the MOH's CPS. HMIS has been computerized using a local system (DESAM), which is in its third version (DESAM III). The paper-based summary forms received from the service delivery points are manually uploaded into this database. However, there are still considerable gaps in this system, which need to be addressed, including the lack of consistent and/or quality data from the states, as well as the inability of automatic data transfer link between the regions database and MOH's CPS tools. This information only includes number and percentage provided with IPTp doses 1 and 2, as well as the number of pregnant women with an ITN.

In the framework of agreements between the NMCP and partners, such as the Global Fund and PMI, NMCP is required to provide regular and specific information on the level of implementation of funded interventions. These data are collected monthly and reported quarterly.

The NMCP has developed, in collaboration with its partners, another parallel/complementary tool to report the number of confirmed malaria cases in pregnant women (see Annex 4). This collection tool emphasizes diagnosis of cases, suspected cases, and confirmation of cases using rapid diagnostic test (RDT) or microscopy. It also takes into account the data on the distribution of ITNs among pregnant women. There is no information on the doses of SP in this data collection tool. This tool is called "canevas mensuel de collecte des données des activités de lutte contre le Paludisme" and is composed of 30 indicators monitored by the Global Fund available at the community level. This information is collected monthly and reported on a quarterly basis. Data monitored by the Global Fund remain at NMCP and are not included in the HMIS system at the level of the National Health Directorate. The chief doctor of the community health center, called "DTC: Directeur Technique de Centre," (with the support of his staff or midwife), is responsible for collecting information and sending a hard copy to the district level. The HIS point of contact (POC) and the malaria focal point at the district level are in charge of compiling

data from all primary collection sites (community, private institutions, religious, and military). They analyze, correct inconsistencies, and record data in an electronic Excel spreadsheet before transferring to a regional file at the Regional Health Directorate. The HIS POC at the Reproductive Health Division (*Division Santé Reproductive*, or DSR) compiles all the district data and sends the data to the NMCP.

There is also a weekly data collection tool for the Integrated Disease Surveillance and Response (IDSR) system. Data are collected on malaria reported through the health facilities to the central level. This tool allows collecting data on malaria cases that are suspected or diagnosed. Data are disaggregated by sex and age. But, no specification for the pregnant woman appears on the table. However, malaria focal points interviewed at selected sites claim that pregnancy is recorded as well. If pregnancy is recorded yet there is no area specified on the table to record it, this raises a problem of harmonization of codes used and completeness of the information. Note that the information collected on this form is for the MOH and serves as epidemiological surveillance for health authorities and the health cluster coordinated by WHO. This tool also serves as an advocacy tool during the Council of Ministers, which the President of the Republic presides over and is held every Wednesday.

A third complementary tool for collecting data on malaria is through a pilot project using electronic data reporting in eight districts of the Segou region and two districts in the region of Bamako. This project was initiated to overcome the difficulties related to data quality in the conventional flow of data, especially in relation to the timeliness and completeness of reporting. This project is supported technically by partners such as MEASURE Evaluation through PMI funding, and in collaboration with Mali's National Agency of Telemedicine and Medical Informatics. Routine information from NMCP data collection forms are recorded on paper documents and sent via mobile phone as a short message service (SMS) to the next level and follow the conventional data flow. So far, two districts have been trained on these tools and are sending data electronically directly to the NMCP. The project is in the expansion phase in the Mopti region. According to an HMIS official at the national level, this pilot experience should be evaluated and integrated to the national system.

Although malaria case management in pregnant women is known in the field as one of the main MIP strategies, there is concern about monitoring case management. To date, only one tool—the monthly data collection tool promoted by the Global Fund—included an indicator on this strategy: the number of confirmed cases of malaria among pregnant women in health facilities (positive test). It should be noted that this indicator does not specify if it is an uncomplicated case or not.

## MALARIA IN PREGNANCY DATA QUALITY

The national HMIS was evaluated twice: once in 2003 by an external evaluator (under the support program for the health sector) and a second time in 2008 by the MOH (through application of the assessment tool, "Health Metrics Network"). At the time of this review, a third evaluation was planned in 2014. In general, the evaluation of the Health Metrics Network concluded that the national HIS is efficient and is able to produce sufficient and reliable information for planning and decision-making. That said, there are difficulties in the data collection and flow because of lack of integration and parallel reporting structures.

Data quality may come into question when national policy is not being implemented, for example, although the NMCP recommends the use of RDTs for diagnosis, microscopy is commonly used at the community level (CSCOMs) because there are laboratories in CSCOMs. In health structures visited during this review (Koulikoro and Bamako), doctors and gynecologists who were interviewed noted that the diagnosis of MIP is either by RDT or microscopy. Microscopy is considered more reliable than the RDT by some providers. It was

reported that sometimes both RDT and microscopy are performed, and RDT is negative and microscopy positive. Providers reported that the RDT can be negative then positive after four hours following a second test. It may be useful in a future study to consider the role provider motivation may have in preferring microscopy versus RDTs for confirmation of malaria diagnosis, if microscopy may be charged for while RDTs are free.

## USE OF MALARIA IN PREGNANCY DATA

The NMCP was originally a division of the *Direction Nationale de la Santé* (DNS) (National Health Directorate). At that time, data from the NMCP was captured at the DNS through a common reporting tool, the RTA, which was also completed by the DRS, and the system was integrated into the national HMIS.

While the NMCP has grown in stature with significant technical and financial support, especially with the PMI program and the Global Fund, the field of strategic information has been strengthened in recent years. The program provides regular M&E of its system; the introduction of databases, such as using SMS mobile phones, which can be effective and less costly, illustrates these enhancements. But the NMCP has also created a system that is not necessarily integrated into the HMIS. The links between the NMCP, community, and district health services and those of the central services of the MOH, including the HMIS, are insured by the support of partners or through non-integrated networks supported by the leadership of each other's health system. This situation of multiple partners and systems is also the origin of parallel information that is not necessarily taken into account in the national system. Also, the NMCP does not have decentralized administrative entities at the regional and district levels.

The DSR compiles and analyzes summary notes of all programs related to RH. Maternal and neonatal health is theoretically the responsibility of RH services, however, the monitoring of indicators related to MIP is the NMCP responsibility. In the field, there is a lack of coordination between the NMCP and DSR in the monitoring of activities related to the MIP component. Given these conditions, challenges related to integration of MIP in the HMIS relate to the HIS architecture, its mechanism of coordination, and linkages between the various divisions of the MOH, which are directly or indirectly involved in M&E of MIP.

## STOCK MANAGEMENT

Table 5 lists the indicators for stock management related to MIP.

**Table 5. Program Management Indicators (Indicators of Inputs and Processes)**

| INDICATORS | OPERATIONAL DEFINITION | SOURCE | FREQUENCY | MEASUREMENT LEVEL | AVAILABILITY DATA |
|---|---|---|---|---|---|
| Number of unexpired malaria control commodities (ACTs, RDTs, SP, LLINs, severe malaria kit) per month | Numerator: Number of unexpired malaria control commodities (ACTs, RDTs, SP, LLINs, severe malaria kit) per month | HLMIS/NMCP | Monthly Quarterly | National, Regional, Health District | Available in management stock register and “Fiche de collecte hebdomadaire des données du paludisme” |

| INDICATORS | OPERATIONAL DEFINITION | SOURCE | FREQUENCY | MEASUREMENT LEVEL | AVAILABILITY DATA |
|---|---|---|---|---|---|
| Proportion of health facilities with no known stock-outs over a week in the main commodities (ACTs, RDTs, SP, LLIN, home management of malaria (HMM) kit, severe malaria kit) per month | Numerator: Number of health facilities that have had a stock-out in the main commodities during the week (ACT, RDT, SP, LLIN, HMM kit, severe malaria kit) per month<br>Denominator: Number of health facilities providing reports | LMIS/NMCP, Special Surveys | Monthly<br>Annual | National, Regional, Health District | Available by survey |

HLMIS, health logistics management information system; LMIS, logistics management information system.

In addition to the monitoring of activities in a timely manner by teams from different levels of the health system and partners, there are 12 sentinel sites that ensure the monitoring of parasite resistance to antimalarials, conduct quality control testing, and validate data on morbidity and mortality caused by malaria.

# Discussion

## STRENGTHS AND OPPORTUNITIES

Mali's commitment to strengthen MIP programming and recent updating of MIP policy to reflect WHO guidance illustrates MIP as priority area in the country's fight against malaria. As noted in the findings, monitoring of malaria indicators is institutionalized throughout the health system from community to health facility to district and national levels. At the same time, there are existing bottlenecks that need to be rectified to improve Mali's capacity to monitor MIP indicators correctly and effectively and use data for decision-making in MIP program implementation. For formative and data audit supervision, the country has manual supervision and audit data collection. Regular supervision visits are conducted. Adjustments are made in accordance with the requirements for completeness and timeliness. There is an opportunity to integrate MIP, which is currently lacking.

## WEAKNESSES

There are frequent instabilities within the MOH. In addition, the crisis at the Global Fund, which resulted in lack of funding for the national malaria program for several years, was a blow to the strengthening of the system of management of strategic information.

Another aspect that should not be overlooked is the changes in policy documents and planning documents, as well as norms and standards, often dictated by the new WHO recommendations, as is currently the case in Mali with the passage of three doses of SP instead of two doses. These changes often lead to difficulties in adapting its documents and their use at the operational level, which poses a major problem in adapting strategic information tools at all levels of the health system in Mali.

Regarding the specific case of MIP, there is a problem of visibility of this strategy in the country. The review made in 2012 in six African countries, including Mali, had noted the efforts to strengthen the program's progress in the adoption of guides based on the recommendations of

the WHO and RBM, but that the strategy would benefit greatly from enhancements. Links with RH also need to be strengthened in terms of coordination and monitoring.

Mali's low levels of IPTp uptake and near lack of data regarding malaria case management among pregnant women highlights the urgency to take a close look at MIP programming. This review, focused on M&E, is an important step in understanding the fundamentals of the national health information system including how and where data are collected and opportunities to strengthen monitoring of MIP programs.

## RECOMMENDATIONS

The recommendations, based on the report findings, highlight a number of areas and steps that Mali can and should consider moving forward to improve MIP M&E and ultimately accelerate MIP programming. These recommendations include:

### Coordination

Improve coordination between the NMCP, DNS, DRS, and partners in monitoring MIP indicators. This coordination may be facilitated by:

- Working jointly to develop an MIP service delivery logic model and MIP indicator reference sheets with clear numerators, denominators, data sources, and methods for collection and analysis, for the routine HMIS, as well as the malaria national strategic plan 2013-17. Key implementing partners could provide additional support to NMCP to specifically develop and implement the logic model and indicator reference sheets. These indicators should include not only IPT and LLIN, but also case management.
- Regarding case management, there is an opportunity to build on existing work done with the Global Fund to monitor malaria in pregnant women. Expand on the Global Fund tool to report not only number of confirmed cases of malaria among pregnant women, but also add an indicator on number of pregnant women diagnosed with malaria who were treated. Examine lessons learned from this work and consider integrating case management indicators into the routine HIS, which would then be reported alongside IPTp and LLIN data.
- An underpinning of effective MIP implementation, including correct and timely monitoring of program indicators, is the partnership between national malaria control partners and RH partners. Presently, NMCP is responsible for collection of IPTp and LLIN indicators, which are reviewed and discussed monthly with the National Directorate of Health "DNS". These meetings should include DNS recognizing that MIP programming is delivered through DNS. This level of collaboration and review of data together will help to improve coordination for planning and implementation. For example, where IPTp uptake may appear low in certain districts/ facilities, plans could be made to increase supervision support or offer targeted training.
- Although this report focuses on M&E, organization and/ or reinvigoration of a national MIP working group would bring value to not only MIP program implementation but also effective monitoring of MIP. This working group, if established, should draw leadership from NMCP and DRS and bring together supporting stakeholders including WHO, United Nations Children's Fund (UNICEF), PMI, and implementing partners to discuss effective planning and implementation related to all aspects of MIP programming, which will lend to increasing MIP M&E.

### Capacity Development

While Mali's policy has been updated to reflect the new WHO guidance on IPTp, it has not yet been implemented. Training of managers, health providers, and the community on the updates in policy is a critical first step to improving MIP care. Changes in IPTp monitoring to reflect

three doses as well as case management (diagnosis and treatment) of pregnant women should be an integrated component of these trainings. Simultaneously, HMIS Specialist, M&E Managers, and the like will also need to be trained or at least oriented to new MIP indicators and their use in registries and reporting forms. This training can and should be reinforced through supportive supervision.

## Health Management Information System Strengthening

In addition to the activities to be done with partners that are listed above, to strengthen the routine HMIS, this report highlights several other opportunities for improvement, including:

- Through a coordinated effort of the partners (possibly through the working group recommended above), work together to ensure monitoring of IPTp3 is integrated into the HMIS registers and reports to keep pace with the recent policy change.
- Develop standard operating procedures for collecting, reporting, analyzing, and using MIP data. This should include paper-based and computer-based data collection, management, and use.
- Invest in data quality improvement for MIP indicators including IPTp 1 and 2 (and 3, when it is integrated), LLIN distribution in ANC, and case management (when/ if they are integrated into the HMIS). This effort includes assigning responsibility and funds to lead data quality improvement efforts that may include developing and implementing a module to assess MIP data quality and supporting the MOH to develop, implement, and monitor action plans to improve data quality. Data use often drives identification of data quality issues, so this should be part of the data quality improvement process. Organize meetings to review data at all levels of monitoring, monthly at the facility level, quarterly at the district level, and above.
- Expand on existing pilots using SMS for reporting should be considered because mobile data collection is more rapid and can free up time spent at health facilities for mentoring to improve data quality rather than gathering and reviewing it.

To review these findings, vet these recommendations, and mobilize resources to act upon them, it is recommended that country level stakeholders, under the leadership of the NMCP and DSR, including WHO, PMI, UNICEF, and implementing/ supporting partners, discuss the findings of this report, the stated recommendations, and identify and prioritize steps for moving forward.

# Annex 1: List of Tables

## LIST OF TABLES



**Table 6. Preventive Treatment in Pregnant Women**

| INDICATORS | OPERATIONAL DEFINITION | SOURCE | FREQUENCY | MEASUREMENT LEVEL | AVAILABILITY DATA |
|---|---|---|---|---|---|
| Proportion of pregnant women who received at least three doses of IPT during their last pregnancy | **Numerator:** Number of pregnant women who received at least three doses of IPT according to national guidelines<br>**Denominator:** Number of pregnant women with prenatal visit | SLIS/NMCP (Routine Data) | Monthly, Quarterly, Annual | National, Regional, District | Data available in RTA routine data (ANC registers) |
| Percent protected by indoor residual spraying (IRS) in targeted areas | **Numerator:** Number of pregnant women protected by IRS in targeted areas X100<br>**Denominator:** Total number of pregnant women in targeted PID | PID Annual Report | Annual | National, Regional, Health District | Data available by national survey |
| Proportion of pregnant women who slept under LLIN the night before the survey | **Numerator:** Number of pregnant women who slept under LLINs in households the day before the survey<br>**Denominator:** Total number of pregnant women who slept in the household the night before the survey | Coverage survey, Management Information System, MICS, DHS | Annual Every 3 to 5 years | National Regional, Health District | Data available by national survey |
| Total pregnant women treated with kits for severe malaria in the public sector | Number of pregnant women treated with kits for severe malaria in the public sector | RTA NMCP report | Monthly Annual | National, Regional, Health District | Data available in outpatient curative care registers and emergency registers |

Source: Malaria Atlas Project

**Table 7. Data Collection Process for Decision-making from Community Level to National Level**

| LEVEL | KEY ACTOR | ROLE | DATA COLLECTION | TOOLS | PERIODICITY | DECISION-MAKING | COMMENTS |
|---|---|---|---|---|---|---|---|
| Community level (CSCOM) | DTC (Directeur Technique de centre or midwife) | Collects and compiles routine data | Malaria Data provided from CSCOM tools (ANC, Outpatient's curative care, emergency register from Community Health Worker (ASC) | Paper form: **National tool**: (RTA 1er echelon/first level)<br><br>ASC monthly report<br><br>Fiche de collecte hebdomadaire des données du paludisme<br><br>**Parallel tool for NMCP**: « *Canevas mensuel de collecte des données des activités de lute contre le paludisme* » (the Global Fund performance indicators)<br><br>Routine Data collection form (Electronic file) | Quarterly collected and reported to district (CSREF level)<br><br>Weekly collected and reported to district (CSREF level)<br><br>Monthly collected but quarterly reported to district level<br><br>Monthly collected but quarterly reported to district level | No data analysis<br>No decision-making | Key actors are not using data at CSCOM level<br><br>Data provided by ASC are often compiled in CSCOM data (no visibility of these data at community level)<br><br>The Malaria parallel tool is monitored by the Global Fund through Population Services International and Measure evaluation (for electronic reporting)<br><br>Data collected for the pilot project |
| District/Reference level (CSREF) | HIS responsible<br><br>Malaria focal point | Compiles, analyzes, makes feed-back to CSCOM for data correction and enter RTA data in national database DESAMII<br><br>Compiles and analyzes, makes feed-back for correction and enter malaria in NMCP excel spread sheet | Malaria data provided from compilation data of all health communities (CSCOM) depending on the district from army health center, private, confessional clinics.<br>Malaria data provided from CSCOM | Electronic database DESAM III and paper form RTA 2e echelon (2nd level)<br><br>« *Canevas mensuel de collecte des données des activités de lute contre le paludisme* » in Excel spread sheet<br><br>Fiche de collecte hebdomadaire des données du paludisme | Quarterly reported to regional level<br><br>Quarterly reported to regional level<br><br>Weekly collected and reported to regional level) | Summarizes makes tables, | HIS POC noted lacks in data quality because data are collected and not used at community level; when reporting data<br>"They said to HIS POC: *Take your thinks (data); it was a huge burden to collect so much data.*" |

| LEVEL | KEY ACTOR | ROLE | DATA COLLECTION | TOOLS | PERIODICITY | DECISION-MAKING | COMMENTS |
|---|---|---|---|---|---|---|---|
| Regional level (Regional Health Directorate) | HIS Responsible | Analyzes and interprets data | Data provided from all districts (CSREF) depending on the region | Electronic database DESAM III<br><br>« Canevas mensuel de collecte des données des activités de lute contre le paludisme » in Excel spread sheet<br><br>Fiche de collecte hebdomadaire des données du paludisme | Quarterly reported to NMCP<br><br>Weekly reported to national level (one copy to National Health Directorate and one copy to NMCP) | Role of technical support to the district level to guide decision-making | The RTA is reported to National Health Directorate (SLIS)<br><br>The parallel tool is reported to NMCP Tools are not yet integrated in HMIS |
| National level | SLIS POC | Compiles data from regional level; Analyzes, enter in national database serve to produce the statistical year book | Data provided from regional health directorates | RTA Electronic database DESAM III | Quarterly analyzed and evaluated | Strategic support, evaluation, resource mobilization and policy decisions; It provides training, monitoring of regions and districts data collected from community, district and regional level serve to produce Statistical year book | The national health directorate did not include data from malaria parallel tools |
| NMCP | Planning and M&E unit (Statistical POC) | Compiles and Analyzes data from parallel tools | Data provided from regional health directorate, districts and CSCOMs | Excel electronic spread sheet<br>« Canevas mensuel de collecte des données des activités de lute contre le paludisme » in Excel spread sheet<br><br>Fiche de collecte hebdomadaire des données du paludisme<br><br>Routine Data collection form (Electronic file) | Quarterly analyzed | Monitoring activities Data review training with regional, district and community level Analyzed for MOH<br><br>Data analysis with technical support from Measure evaluation | NMCP develops parallel tools to take into account MIP indicators not yet included in RTA<br><br>NMCP benefits partners support to monitor parallel tools Parallels tools are not integrated in National Information system |

# Annex 2: List of Stakeholders Interviewed

| NAME | ROLE/TITLE | ORGANIZATION | STRUCTURE LEVEL |
|---|---|---|---|
| Dr. Saran Bore | Chief of Unit RH | National Health Directorate | National level |
| Dr. Bogoba | Chief of Unit SLIS | National Health Directorate | National Level |
| Dr. Diakalia Kone | Director | NMCP | National level |
| Dr. Mohamed Keita | Deputy Director | NMCP | National level |
| Dr. Barrason Diarra | Chief division Case Management | NMCP | National level |
| Dr. Madina Konaté | Chief division Planning and M&E | NMCP | National level |
| Mr. Baba Cissé | Statistical POC | NMCP | National level |
| Dr. Sanoussy Kone | Pharmacist, responsible for Procurement and supply management (ITN, SP) | Regional Health Directorate/Bamako | Regional level |
| Dr. Yacouba Keita | Malaria focal point | Regional Health Directorate, Bamako | Regional level |
| Dr. Kone Diakhara Traoré | Director | Regional Health Directorate/Koulikoro region | Regional level |
| Dr. Boubacar Traoré | Chief doctor | Commune I Reference/ District Health center Konimba Pleah/Bamako | District facility level |
| Mrs. Traoré Fatima | Responsible for HMIS | Commune I District Health center Konimba Pleah/Bamako | District facility level |
| Mrs. Traoré Oumou Konaté | RH Officer | Reference/district health center Koulikoro | District facility level |
| Dr. Hamadou Coulibaly | Gynecologist Obstetrician | Reference/district health center Koulikoro | District facility level |
| Dr. Hyacinthe Dakouo | Deputy chief doctor | Reference/district health center Koulikoro | District facility level |
| Dr. Diallo Aissatou Maiga | Malaria focal point | Reference/district health center Koulikoro | District facility level |
| Dr. Issa Malé | Directeur Technique de Centre (Chief doctor) | Community health center of Kole Bougou, Koulikoro | Community facility level |
| Dr. Traoré Bintou Sangaré | Directeur Technique de Centre (Chief doctor) | Community Health Association Community Health Center of Garantiguibougou/Bamako | Community facility level |
| Dr. Yacouba Djiré | Chief Malaria department | Population Services International/Global Fund | Partner |
| Dr. Abdoulaye Touré | Malaria Focal point | UNICEF | Partner |
| Dr. Ibrahima Socé Fall | Country Representative | WHO | Partner |
| Dr. Cheikh Oumar Coulibaly | Malaria focal point | WHO | Partner |
| Dr. Safoura Berthe Cissé | Senior Technical Advisor | Systems for Improved Access to Pharmaceutical Services, Management Sciences for Health | Partner |
| Mrs. Aissatou Aida Lo | Chief of party | MCHIP/Save the Children | Partner |
| Dr. Drissa Bourama Ouattara | Health community advisor | MCHIP/Save the Children | Partner |

| NAME | ROLE/TITLE | ORGANIZATION | STRUCTURE LEVEL |
|---|---|---|---|
| Dr. Aboubacar Sadou | Resident Advisor | PMI | Partner |
| Dr. Jules Mihigo | CDC PMI advisor | PMI | Partner |
| Mr. Aliou Diallo | PMS Malaria | PMI | Partner |
| Dr. Kassoum Kentao | Researcher (based in UK) interviewed by e-mail | Malaria Research and Training Center | Partner |

# Annex 3: Semi-Structured Interview Guides

## NATIONAL LEVEL

**National Health Directorate/NMCP/Division of RH**

1. Who is responsible for M&E of the MIP (monitor and evaluate program)?
2. Did he/she receive training/capacity-building in M&E?
3. Where is he/she based?
4. Existence of a national MIP M&E framework for measuring results/standards documents (IPTp, promoting LLIN/ITN, ACT), national, strategic plans/activities underway for HMIS revision?
5. Are MIP M&E integrated in the national information system and national policy documents?
6. Did the institution have specific funds for MIP M&E (costed plan, financial reports)?
7. Are MIP data included in the national HMIS?
8. What tools are used for collecting MIP data?
9. What MIP indicators are collected and stored?
10. Is the HIS integrated or parallel?
11. What is the level of completeness and timeliness of MIP reporting?
12. Have data quality improvement efforts been taken generally?
13. Who has led the data quality efforts for MIP data? Who else has been involved?
14. What are the strategies for the dissemination of MIP data?
15. How are indicators produced and analyzed?
16. When was the last time you used MIP data collected through national HMIS? How did you use it?
17. How are MIP data used at the national level for decision-making?
18. What are the threats, challenges, and opportunities for MIP M&E activities?
19. What are the recommendations?

## REGIONAL LEVEL (REGIONAL HEALTH DIRECTORATES)

1. Human resources
2. Who is responsible for MIP M&E data collection? Data transmission?
3. Did s/he receive training/capacity-building to collect quality data and use information (to collect quality data and use information?
4. Are MIP data collected through the HMIS?
5. What forms, tools, registers, etc. are used?
6. What is actually collected and reported (indicators)?
7. Are all MIP indicators captured through ANC?
8. Does MIP HIS exist at the regional level?
9. Is MIP HIS integrated or parallel?
10. How complete and timely is reporting?

11. How are indicators summarized and analyzed?
12. How are MIP data used, if at all?
13. Difficulties, strengths, opportunities, gaps, recommendations?

## DISTRICT (CSREF) AND HEALTH FACILITY LEVEL (CSCOM)

1. List of HMIS Tools for MIP M&E available: ANC registers, pregnancy follow-up forms
2. Are tools integrated or parallel?
3. Malaria diagnosis and treatment?
4. When pregnant woman got fever, where was she diagnosed? Where is she referred?
5. Data related to reference of pregnant women with malaria who do not attend ANC?
6. When did pregnant women receive IPT p1, IPTp2, IPTp3?
7. ITN Provision to pregnant women?
8. What forms, tools, registers, etc. are used?
9. What is actually collected and reported (indicators)?
10. Are all MIP indicators captured through ANC?
11. Are MIP data integrated in RTA?
12. How complete and timely is reporting?
13. How are indicators summarized, analyzed?
14. How do you use data collected?
15. How are data reported?
16. Level of reporting? Regional, national level?
17. Frequency of reporting?
18. Data quality (missing data)?

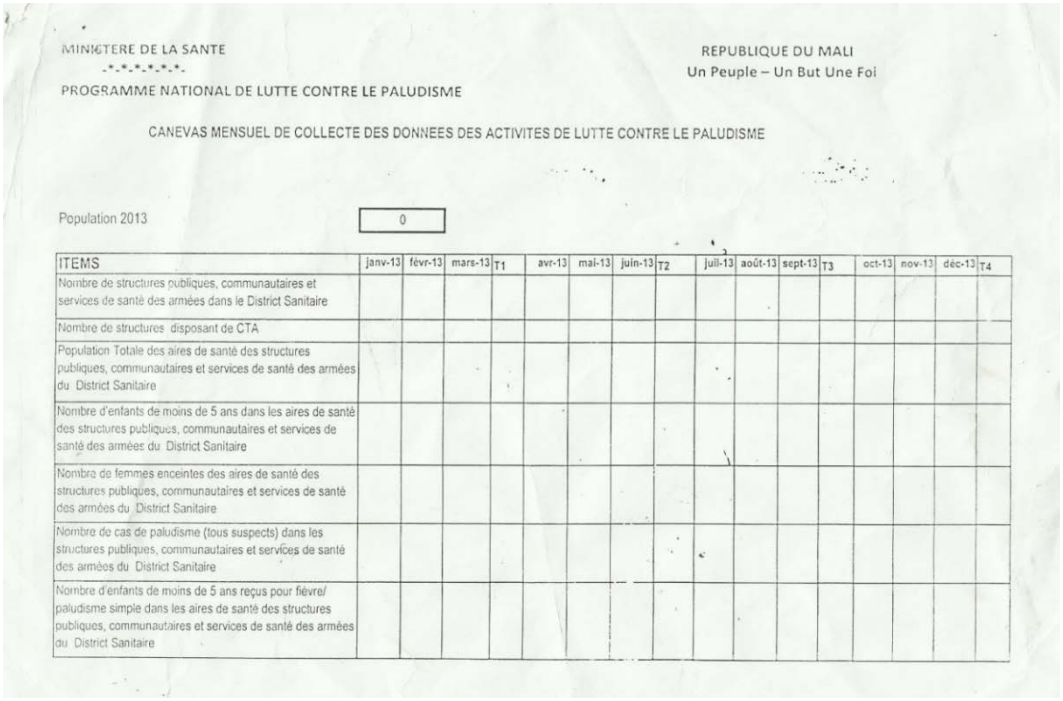
## PRESIDENT'S MALARIA INITIATIVE

1. NMCP/PMI objectives, technical support related to MIP M&E
2. MIP M&E capacity-building
3. Challenges, strengths, opportunities, threats
4. Lessons learned

## MCHIP AND OTHER PARTNERS

1. MCHIP objectives related to MIP M&E
2. Routine HMIS, Available database
3. MIP M&E capacity-building
4. HMIS technical support
5. Challenges, strengths, opportunities, threats
6. Lessons learned

# Annex 4: Parallel Tools Provided by National Malaria Control Program (Performance Indicators Monitored by Global Fund)



MINISTERE DE LA SANTE

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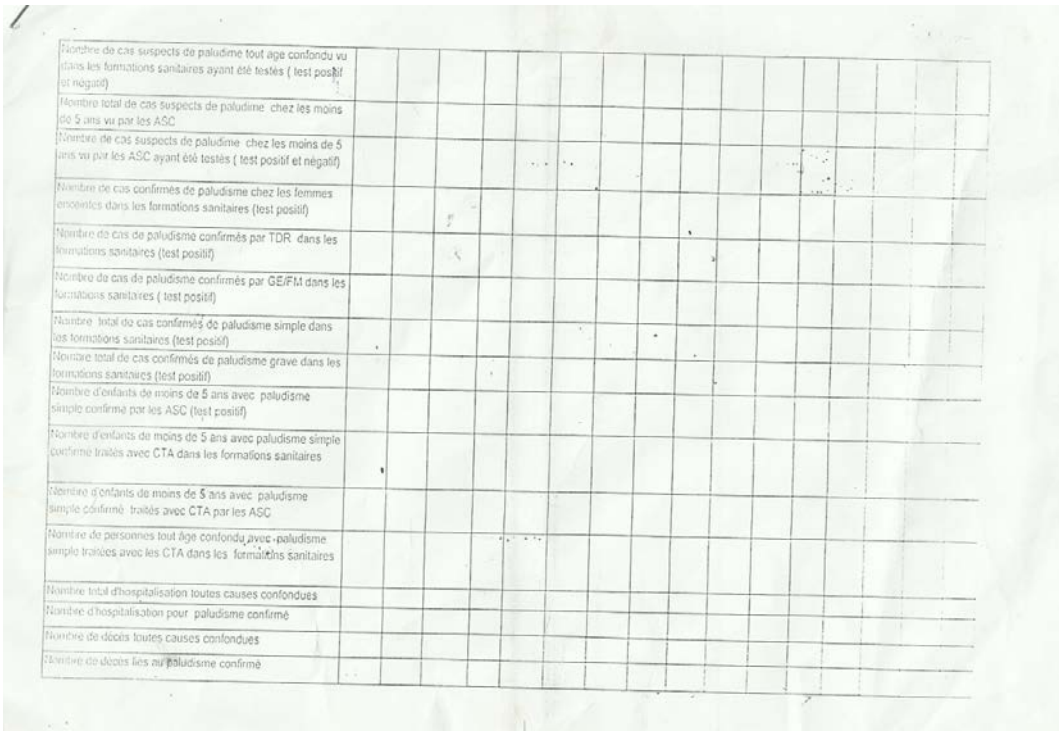
PROGRAMME NATIONAL DE LUTTE CONTRE LE PALUDISME

REPUBLIQUE DU MALI
Un Peuple – Un But Une Foi

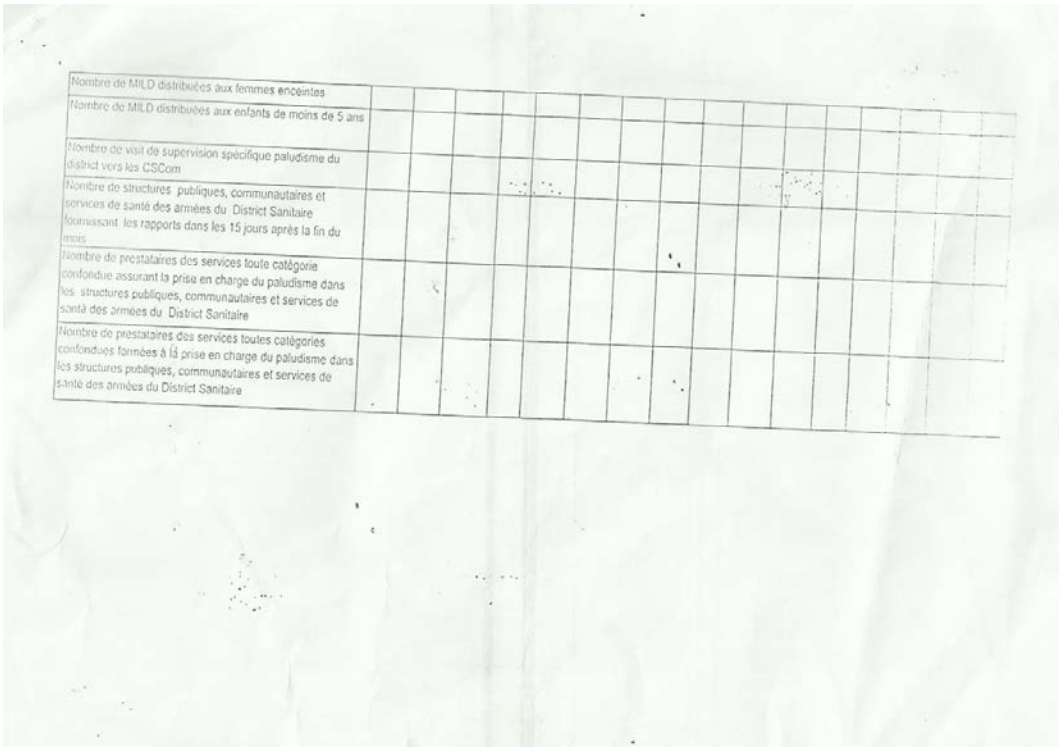
CANEVAS MENSUEL DE COLLECTE DES DONNEES DES ACTIVITES DE LUTTE CONTRE LE PALUDISME

Population 2013 | 0

| ITEMS | janv-13 | févr-13 | mars-13 | T1 | avr-13 | mai-13 | juin-13 | T2 | juil-13 | août-13 | sept-13 | T3 | oct-13 | nov-13 | déc-13 | T4 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Nombre de structures publiques, communautaires et services de santé des armées dans le District Sanitaire | | | | | | | | | | | | | | | | |
| Nombre de structures disposant de CTA | | | | | | | | | | | | | | | | |
| Population Totale des aires de santé des structures publiques, communautaires et services de santé des armées du District Sanitaire | | | | | | | | | | | | | | | | |
| Nombre d'enfants de moins de 5 ans dans les aires de santé des structures publiques, communautaires et services de santé des armées du District Sanitaire | | | | | | | | | | | | | | | | |
| Nombre de femmes enceintes des aires de santé des structures publiques, communautaires et services de santé des armées du District Sanitaire | | | | | | | | | | | | | | | | |
| Nombre de cas de paludisme (tous suspects) dans les structures publiques, communautaires et services de santé des armées du District Sanitaire | | | | | | | | | | | | | | | | |
| Nombre d'enfants de moins de 5 ans reçus pour fièvre/ paludisme simple dans les aires de santé des structures publiques, communautaires et services de santé des armées du District Sanitaire | | | | | | | | | | | | | | | | |

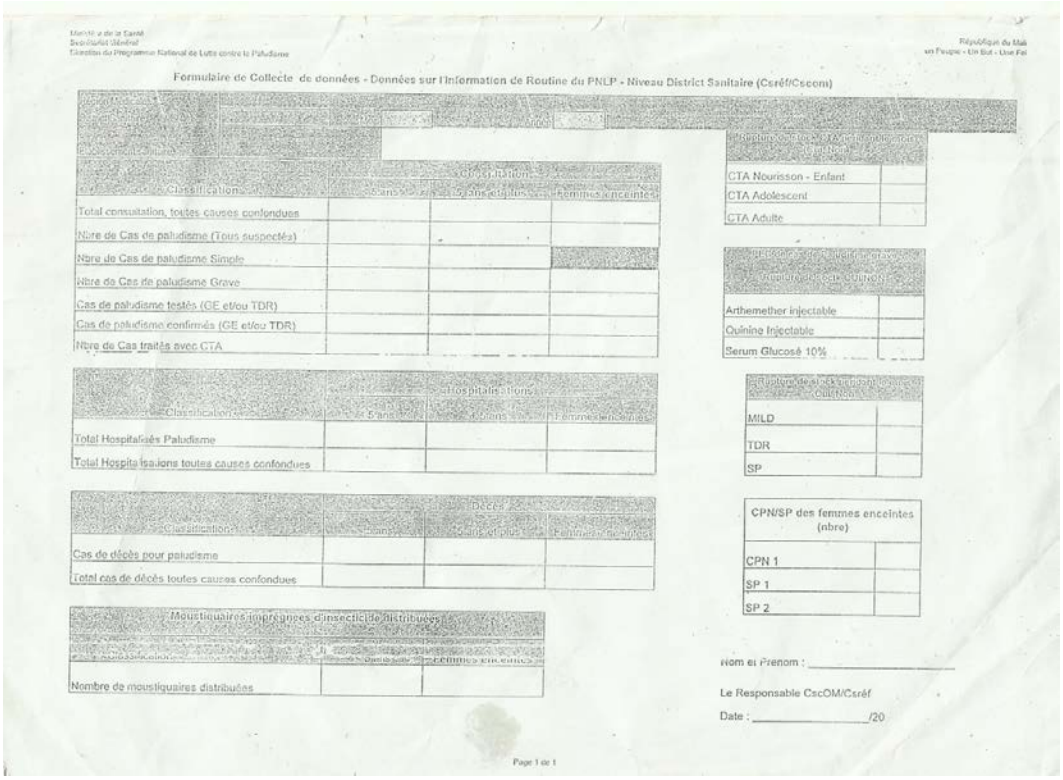


| | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Nombre de cas suspects de paludisme tout âge confondu vu dans les formations sanitaires ayant été testés ( test positif et négatif) | | | | | | | | | | | | | | | | | | |
| Nombre total de cas suspects de paludisme chez les moins de 5 ans vu par les ASC | | | | | | | | | | | | | | | | | | |
| Nombre de cas suspects de paludisme chez les moins de 5 ans vu par les ASC ayant été testés ( test positif et négatif) | | | | | | | | | | | | | | | | | | |
| Nombre de cas confirmés de paludisme chez les femmes enceintes dans les formations sanitaires (test positif) | | | | | | | | | | | | | | | | | | |
| Nombre de cas de paludisme confirmés par TDR dans les formations sanitaires (test positif) | | | | | | | | | | | | | | | | | | |
| Nombre de cas de paludisme confirmés par GE/FM dans les formations sanitaires ( test positif) | | | | | | | | | | | | | | | | | | |
| Nombre total de cas confirmés de paludisme simple dans les formations sanitaires (test positif) | | | | | | | | | | | | | | | | | | |
| Nombre total de cas confirmés de paludisme grave dans les formations sanitaires (test positif) | | | | | | | | | | | | | | | | | | |
| Nombre d'enfants de moins de 5 ans avec paludisme simple confirmé par les ASC (test positif) | | | | | | | | | | | | | | | | | | |
| Nombre d'enfants de moins de 5 ans avec paludisme simple confirmé traités avec CTA dans les formations sanitaires | | | | | | | | | | | | | | | | | | |
| Nombre d'enfants de moins de 5 ans avec paludisme simple confirmé traités avec CTA par les ASC | | | | | | | | | | | | | | | | | | |
| Nombre de personnes tout âge confondu avec paludisme simple traitées avec les CTA dans les formations sanitaires | | | | | | | | | | | | | | | | | | |
| Nombre total d'hospitalisation toutes causes confondues | | | | | | | | | | | | | | | | | | |
| Nombre d'hospitalisation pour paludisme confirmé | | | | | | | | | | | | | | | | | | |
| Nombre de décès toutes causes confondues | | | | | | | | | | | | | | | | | | |
| Nombre de décès liés au paludisme confirmé | | | | | | | | | | | | | | | | | | |



| |
|---|
| Nombre de MILD distribuées aux femmes enceintes |
| Nombre de MILD distribuées aux enfants de moins de 5 ans |
| Nombre de visit de supervision spécifique paludisme du district vers les CSCom |
| Nombre de structures publiques, communautaires et services de santé des armées du District Sanitaire fournissant les rapports dans les 15 jours après la fin du mois |
| Nombre de prestataires des services toute catégorie confondue assurant la prise en charge du paludisme dans les structures publiques, communautaires et services de santé des armées du District Sanitaire |
| Nombre de prestataires des services toutes catégories confondues formées à la prise en charge du paludisme dans les structures publiques, communautaires et services de santé des armées du District Sanitaire |

**Electronic tool provided by NMCP with Measure Evaluation technical support**



Formulaire de Collecte de données - Données sur l'Information de Routine du PNLP - Niveau District Sanitaire (Csréf/Cscom)

| Consultations | |
|---|---|
| Classifications | Nbre |
| Total consultation, toutes causes confondues | |
| Nbre de Cas de paludisme (Tous suspectés) | |
| Nbre de Cas de paludisme Simple | |
| Nbre de Cas de paludisme Grave | |
| Cas de paludisme testés (GE et/ou TDR) | |
| Cas de paludisme confirmés (GE et/ou TDR) | |
| Nbre de Cas traités avec CTA | |

| Rupture de stock (à la fin du mois) | |
|---|---|
| CTA Nourisson - Enfant | |
| CTA Adolescent | |
| CTA Adulte | |

| Rupture de stock (à la fin du mois) | |
|---|---|
| Arthemether injectable | |
| Quinine Injectable | |
| Serum Glucosé 10% | |

| Hospitalisations | |
|---|---|
| Classification | Nbre |
| Total Hospitalisés Paludisme | |
| Total Hospitalisations toutes causes confondues | |

| Rupture de stock (à la fin du mois) | |
|---|---|
| Produits | |
| MILD | |
| TDR | |
| SP | |

| Décès | |
|---|---|
| Classification | Nbre |
| Cas de décès pour paludisme | |
| Total cas de décès toutes causes confondues | |

| CPN/SP des femmes enceintes (nbre) | |
|---|---|
| CPN 1 | |
| SP 1 | |
| SP 2 | |

| Moustiquaires imprégnées d'insecticide distribuées | |
|---|---|
| Classification | Nbre |
| Nombre de moustiquaires distribuées | |

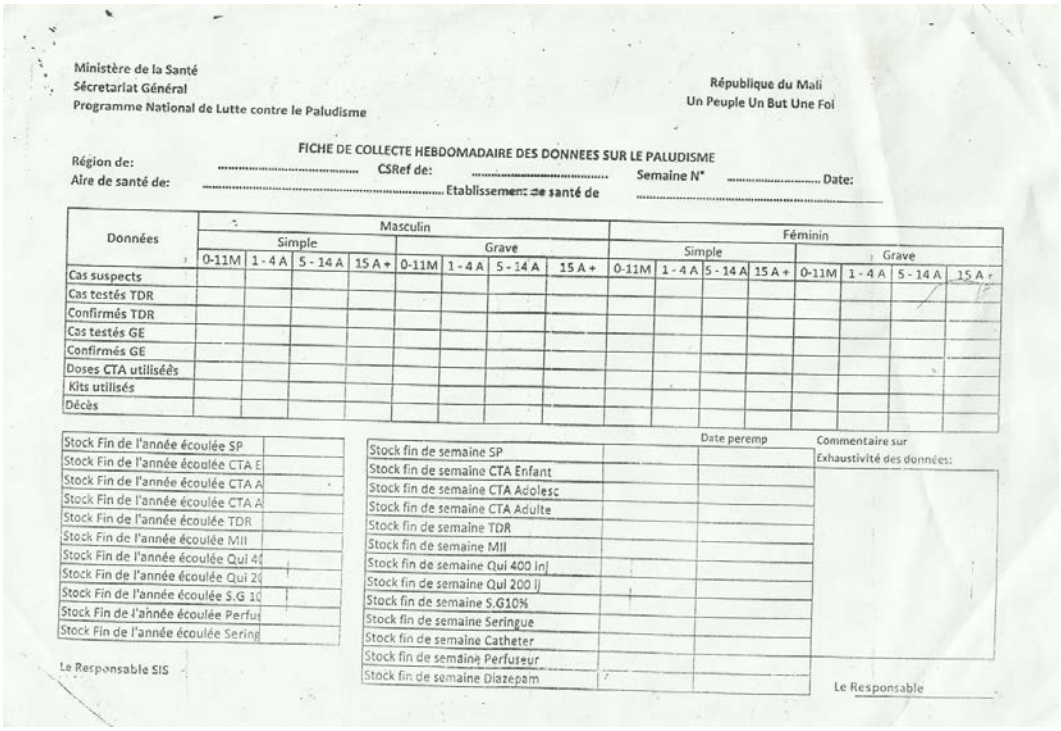
Nom et Prenom : _____

Le Responsable CscOM/Csréf

Date : _____/20

Page 1 de 1

## MOH tool weekly reported



Ministère de la Santé
Sécretariat Général
Programme National de Lutte contre le Paludisme

République du Mali
Un Peuple Un But Une Foi

FICHE DE COLLECTE HEBDOMADAIRE DES DONNEES SUR LE PALUDISME

Région de: ..... CSRef de: ..... Semaine N° ..... Date:
Aire de santé de: ..... Etablissement de santé de .....

| Données | Masculin | | | | | | | | Féminin | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Simple | | | | Grave | | | | Simple | | | | Grave | | | |
| | 0-11M | 1 - 4 A | 5 - 14 A | 15 A + | 0-11M | 1 - 4 A | 5 - 14 A | 15 A + | 0-11M | 1 - 4 A | 5 - 14 A | 15 A + | 0-11M | 1 - 4 A | 5 - 14 A | 15 A + |
| Cas suspects | | | | | | | | | | | | | | | | |
| Cas testés TDR | | | | | | | | | | | | | | | | |
| Confirmés TDR | | | | | | | | | | | | | | | | |
| Cas testés GE | | | | | | | | | | | | | | | | |
| Confirmés GE | | | | | | | | | | | | | | | | |
| Doses CTA utiliséés | | | | | | | | | | | | | | | | |
| Kits utilisés | | | | | | | | | | | | | | | | |
| Décès | | | | | | | | | | | | | | | | |

| | |
|---|---|
| Stock Fin de l'année écoulée SP | |
| Stock Fin de l'année écoulée CTA E | |
| Stock Fin de l'année écoulée CTA A | |
| Stock Fin de l'année écoulée CTA A | |
| Stock Fin de l'année écoulée TDR | |
| Stock Fin de l'année écoulée MII | |
| Stock Fin de l'année écoulée Qui 4( | |
| Stock Fin de l'année écoulée Qui 2( | |
| Stock Fin de l'année écoulée S.G 1( | |
| Stock Fin de l'année écoulée Perfus | |
| Stock Fin de l'année écoulée Sering | |

Le Responsable SIS

| | | Date peremp |
|---|---|---|
| Stock fin de semaine SP | | |
| Stock fin de semaine CTA Enfant | | |
| Stock fin de semaine CTA Adolesc | | |
| Stock fin de semaine CTA Adulte | | |
| Stock fin de semaine TDR | | |
| Stock fin de semaine MII | | |
| Stock fin de semaine Qui 400 inj | | |
| Stock fin de semaine Qui 200 ij | | |
| Stock fin de semaine S.G10% | | |
| Stock fin de semaine Seringue | | |
| Stock fin de semaine Catheter | | |
| Stock fin de semaine Perfuseur | | |
| Stock fin de semaine Diazepam | | |

Commentaire sur Exhaustivité des données:

Le Responsable

# Bibliography


2008. *Business Plan du Mali dans le cadre de la Lutte contre Paludisme*.

ATN PLUS, United States Agency for International Development (USAID)/Centers for Disease Control and Prevention (CDC)/President's Malaria Initiative (PMI). 2013. *Rapport de Recherche: Evaluation de la qualité de la prise en charge des cas de paludisme et des soins prénatals dans les structures de santé au Mali*. Mali: ATN PLUS, USAID/CDC/PMI.

ATN PLUS, United States Agency for International Development (USAID)/Centers for Disease Control and Prevention (CDC)/President's Malaria Initiative (PMI). 2013. *Rapport de Recherche: Les obstacles à l'utilisation du traitement préventif intermittent (TPI) à la Sulfadoxine Pyriméthamine (SP) par les prestataires pendant la consultation prénatale recentrée (CPNR) au Mali*. Mali: ATN PLUS, USAID/CDC/PMI.

Carlson Meredith, Lucy S. Paintain, Jane Bruce, Jayne Webster and Jo Lines. 2011. "Who Attends Antenatal Care and Expanded Programme on Immunization Services in Chad, Mali and Niger? The Implications for Insecticide-treated net delivery." *Malaria Journal* 10:341. doi:10.1186/1475-2875-10-341.

Cellule de Planification et de Statistiques (CPS/SSDSPF), Institut National de la Statistique (INSTAT), Centre d'Études et d'Information Statistiques (INFO-STAT) Bamako, Mali and ICF International. 2014. Mali DHS 2012-2013. Rockville, Md.: CPS/SSDSPF, INSTAT, INFO-STAT and ICF International.

Coulibaly, Drissa, Stanislas Rebaudet, Mark Travassos, Youssouf Tolo, Matthew Laurens, Abdoulaye K. Kone, Karim Traore et al. 2013. "Spatio-temporal Analysis of Malaria Within a Transmission Season in Bandiagara, Mali." *Malaria Journal* 12:82. doi: 10.1186/1475-2875-12-82.

Evaluation externe du Plan Décennal de Développement Sanitaire et Social (PNDSSS) 1998–2007.

Famanta Aminata, Mahamadou Diakite, Sory I. Diawara, Seidina A. Diakite, Saibou Doumbia, Karim Traoré, Drissa S. Konaté. 2011. « Prévalence du Paludisme Maternel, Placentaire et du Petit Poids de Naissance au cours du Travail d'Accouchement et en Post-Partum en milieu périurbain Bamako (Mali). » *Santé* 21: 3-7. doi: 10.1684/san.2011.0234.

Feuille de Route pour l'atteinte des Objectifs RBM au 31.12.2011 (outils SDADME 2011).

Kone, Aminatou, Marga van de Vegte-Bolmer, Rianne Siebelink-Stoter, Geert-Jan van Gemert, Antoine Dara, Hamidou Niangaly, Adrian Luty, Ogobara K. Doumbo, Robert Sauerwein, and Abdoulaye A Djimde. 2010. "Sulfadoxine Pyrimethamine Impairs Plasmodium Falciparum Gametocyte Infectivity and Anopheles Mosquito Survival." *International Journal of Parasitology* 40:1221–8. doi: 10.1016/j.ijpara.2010.05.004.

Maiga, Oumou M., Kassoum Kayentao, Boubacar T. Traoré, Abdoulaye Djimde, Bouyagui Traoré, Mouctar Diallo, Aissata Ongoiba et al. 2011. "Superiority of 3 over 2 doses of Intermittent Preventive Treatment with Sulfadoxine-Pyrimethamine for the Prevention of Malaria during Pregnancy in Mali: a Randomized Controlled Trial." Clinical Infectious Diseases 53:215–23. doi: 10.1093/cid/cir374.

National Malaria Policy document (2008).

National Malaria Policy document (2013).

Newman, Robert D., Allisyn C. Moran, Kassoum Kayentao, Elizabeth Benga-De, Mathias Yameogo, Oumar Gaye, Ousmane Faye, et al. 2006. "Prevention of Malaria During Pregnancy in West Africa: Policy Change and the Power of Subregional Action." *Tropical Medicine & International Health* 11:462–469.

*Plan de Communication pour la Lutte contre le Paludisme 2007–2011*. Mali.

Preventive of 3 over 2 doses of Intermittent Preventive Treatment with Sulfadoxine-pyrimethamine for the Preventive of Malaria during Pregnancy in Mali: a randomized controlled trial, Johns Hopkins University. June 15, 2013.

Programme National Lutte Paludisme. Rapport d'Activités 2008 et Plan Opérationnel 2009. Mali.

Programme National de Lutte contre le Paludisme. Mars 2009.

Programme National de Lutte contre le Paludisme (PNLP). 2009. *Plan Stratégique de Lutte contre le Paludisme 2010–2014*. Mali: PNLP.

Programme National de Lutte contre le Paludisme (PNLP). 2013. *Plan Stratégique de Lutte contre le Paludisme 2013–2017*. Mali: PNLP.

Programme National de Lutte contre le Paludisme (PNLP). 2013. *Plan National de suivi-évaluation 2013–2017*. Mali: PNLP.

Programme National de Lutte contre le Paludisme (PNLP), INFO-STAT and ICF Macro. 2010. *Enquête sur la Prévalence de l'Anémie et de la Parasitemie Palustre chez les Enfants (EA&P) au Mali 2010*. Calverton, Md.: CPS/DNSI and ICF Macro.

USAID President's Malaria Initiative. *Malaria Operational Plan (MOP) Mali, FY 2010*. http://www.pmi.gov/where-we-work/mali.

USAID President's Malaria Initiative. *Malaria Operational Plan (MOP) Mali, FY 2011*. http://www.pmi.gov/where-we-work/mali.

USAID President's Malaria Initiative. *Malaria Operational Plan (MOP) Mali, FY 2012*. http://www.pmi.gov/where-we-work/mali.

USAID President's Malaria Initiative. *Malaria Operational Plan (MOP) Mali, FY 2013*. http://www.pmi.gov/where-we-work/mali.

World Health Organization. 2010. *Manuel du Schéma Directeur d'Approvisionnement et de Distribution des Médicaments Essentiels (SDADME 2010)*. http://mali.cipt.info/wp-content/uploads/sites/7/2013/04/SDADME-version-du-13-sept-2010.finale1doc-draft.pdf.