

A Documentation of Malaria Program Implementation in Burkina Faso

Prepared by MCHIP/USAID in Collaboration with the National Malaria Control Program

March 2013

Ministère de la Santé
BURKINA FASO
Unité Programm. Santé

PREVENTION DU PALUDISME chez la femme enceinte

Pour prévenir le paludisme chez la femme enceinte, il faut :

I - La prise supervisée de la Sulfadoxine-Pyriméthamine (SP)

Comment donner la SP ?

1. S'assurer que la femme est à son domicile traitée et que les médicaments arrivent au bon moment programmé.
2. Demander à la femme si elle a déjà pris la SP ou si elle a des douleurs articulaires - si oui, ne pas lui en donner.
3. Demander si elle est alléguée la SP ou si elle a des douleurs articulaires - si oui, ne pas lui en donner.
4. Si oui, sans questionner si c'est elle ou son conjoint la SP, dans les cas où elle a déjà pris la SP, elle lui explique le but de sa prise.
5. Lui offre une gâchette d'une tablette et une compagne de SP et l'aider à les avaler.
6. Observer la femme avaler les deux (2) comprimés de SP.
7. S'asseoir dans le registre CSP, sur la fiche CSP et dans le carnet de santé de la femme que la cheffe a été prise.
8. Donner un rendez-vous à la femme.

II - L'utilisation de la moustiquaire imprégnée

Comment l'utiliser ?

1. La retirer du sachet d'emballage ;
2. L'étaler pendant 24 heures à l'extérieur, puis la suspendre au-dessus du couchage (matras, matelas, lit) ;
3. Changer régulièrement ses bords sous la natte ou le matelas et la remettre le matin.

Comment conserver son efficacité ?

1. Store la moustiquaire au-dessus du couchage, bien du haut de la natte ou du matelas ;
2. Eviter de faire passer ses bords sous la natte ou le matelas avant de vous coucher ;
3. La remettre en son état de départ ;
4. La laver dans un récipient sans remède antipaludique, jamais dans une eau saumâtre (il s'agit notamment de l'eau saumâtre à l'extérieur) ;
5. Vérifier que la tête droite et de autres parties, avant d'aller de nuit ou du matin ou pendant ou en la nuit.




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ALGORITHME DECISIONNEL DE PRISE EN CHARGE DU PALUDISME

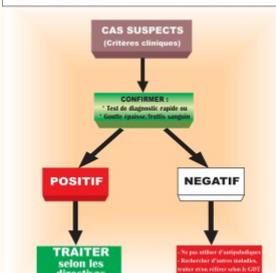
CAS SUSPECTS (Critères cliniques)

CONFIRMER
Test de diagnostic rapide en Centre saine, traits sanguins

POSITIF → **TRAITER selon les directives**

NEGATIF → **Ne pas faire d'impasse! Rechercher d'autres causes, tester avec d'autres tests de CRD**

Prestataire, pour la qualité de ses soins, ne prescrit jamais d'antipaludiques lorsque le TDR est négatif.



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- Program for Health Development (PADS)
- General Directorate of Health Protection, Ministry of Health of Burkina Faso
- General Directorate of Pharmacies, Medicines and Laboratories
- Directorate of Maternal and Child Health, Ministry of Health of Burkina Faso
- Directorate of Disease Control (DLM)
- Directorate of Public Hygiene and Health Education
- Directorate of Community Health
- Regional and District Health Directorates
- Ecole Nationale de la Santé Publique (National School of Public Health)
- Central Essential Medicines and Generic Drugs Purchasing Agency (CAMEG)
- USAID DELIVER PROJECT
- Abt Associates
- U.S. Peace Corps
- Plan Burkina
- United Nations Children’s Fund (UNICEF)
- World Health Organization

Abbreviations and Acronyms

AB	Accoucheuses Brevetées (Midwife)
ACT	Artemisinin-Based Combination Therapy
ANC	Antenatal Care
ASC	Agent de Santé Communautaire (Community Health Worker)
BCC	Behavior Change Communication
CAMEG	Centrale d’Achat des Médicaments Essentiels Génériques (Central Essential Medicines and Generic Drugs Purchasing Agency)
CBO	Community-Based Organization
CCM	Country Coordinating Mechanism
CDC	U.S. Centers for Disease Control and Prevention
CHW	Community Health Worker
CSPS	Centre de Santé et de Promotion Sociale (Health Center)
DGPML	Direction Générale de la Pharmacie, du Médicament et des Laboratoires (Pharmacy, Medicines and Laboratories Directorate)
DHS	Demographic and Health Survey
DLM	Direction de la Lutte contre la Maladie (Disease Control Directorate)
DPV	Direction de la Prévention par les Vaccinations (Directorate for Vaccination Program)
ENSP	Ecole Nationale de Santé Publique (National School of Public Health)
GFATM	Global Fund to Fight AIDS, Tuberculosis and Malaria
HIV	Human Immunodeficiency Virus
HMIS	Health Management Information System
IEC	Information, Education and Communication
IMCI	Integrated Management of Childhood Illnesses
IMTP	Integrated Malaria Training Package
IPTp	Intermittent Preventive Treatment in Pregnancy
IRS	Indoor Residual Spraying
ITN	Insecticide-Treated Bed Net
LLIN	Long-Lasting Insecticide-Treated Bed Net
LMIS	Logistics Management Information System
LNSP	Laboratoire National de Santé Publique (National Public Health Laboratory)
MCH	Maternal and Child Health
MCHIP	Maternal and Child Health Integrated Program
M&E	Monitoring and Evaluation
MIP	Malaria in Pregnancy
MIS	Malaria Indicator Survey
MNCH	Maternal, Neonatal and Child Health
MOH	Ministry of Health
NGO	Nongovernmental organization
NHA	National Health Accounts
NHMIS	National Health Management Information System

NMCP	National Malaria Control Program
PADS	Programme d'Appui au Développement Sanitaire (a GF principal recipient)
PHC	Primary Health Center
PMI	U.S. President's Malaria Initiative
PMTCT	Prevention of Mother-to-Child HIV Transmission of HIV
PNLP	Programme National de Lutte Contre le Paludisme (National Malaria Control Program)
PNEFL	Programme National d'Elimination de la Filariose Lymphatique (National Lymphatic Filariasis Program)
PR	Principal Recipient of a GFATM grant
PCV	U.S. Peace Corps Volunteer
RAOPAG	Le Réseau d'Afrique de l'Ouest contre le Paludisme Pendant la Grossesse (West Africa Network Against Malaria in Pregnancy)
RASI	Rapports Activité de Santé Informatisé (Computerized Health Activity Reports)
RBM	Roll Back Malaria
RDT	Rapid Diagnostic Test
SMC	Seasonal Malaria Chemoprevention
SP	Sulfadoxine-Pyrimethamine
STI	Sexually Transmitted Infection
UNICEF	United Nations Children's Fund
USAID	United States Agency for International Development
WHO	World Health Organization

Introduction

This documentation of malaria program implementation in Burkina Faso was undertaken in 2012 by Jhpiego as the lead organization for the U.S. Agency for International Development (USAID) Maternal and Child Health Integrated Program (MCHIP), in collaboration with the National Malaria Control Program (NMCP), to document the extent of program implementation and point a way forward. Specific objectives of the documentation were:

- Document the current status of malaria indicators
- Review the extent of malaria program implementation by all partners
- Identify best practices/strategies that have supported malaria programming success
- Determine existing bottlenecks in malaria program implementation and recommend how these could be overcome

BACKGROUND

With a population of 16.2 million, Burkina Faso is a poor West African country, ranking 181 out of 187 countries on the United Nation's Human Development Index (MOH 2012a; World Bank 2011). The country's annual growth rate is 3.7% (UNICEF 2011). The majority of the population (80%) resides in rural areas, versus 20% living in urban areas. Burkina Faso is a land-locked country that is surrounded by Mali in the north, Niger in the northeast, and by Benin, Togo, Ghana and Côte d'Ivoire in the south. The country has a tropical climate with two seasons: dry and rainy. Burkina Faso is one of six Sahelian countries along the Sahara desert with yearly seasonal variations in rainfall (Wuehler et al. 2011). More than 80% of Burkina Faso's burden of disease is due to communicable diseases, with the population affected by high rates of infectious diseases, such as malaria, diarrhea and neglected tropical diseases (WHO 2006b).

Administratively, Burkina Faso is divided into 13 regions, 45 provinces, 70 health districts and 351 rural and urban municipalities (MOH 2012). The Ministry of Health (MOH) comprises three administrative levels: the central, regional and district levels. Three university hospitals, one national hospital, nine regional hospitals, 44 district hospitals and 1,443 health centers serve the health needs of the country. Formal health services for the rural population are limited to small health centers staffed by two nurses and one midwife (Kouyaté et al. 2007).

The private sector includes about 450 for-profit facilities, 45 nongovernment organizations (NGOs) and faith-based facilities, and 140 biomedical laboratories. This sector has increased exponentially since the 1970s when there were only 10 (IRIN 2009). Regulation of these private facilities varies. In 2009, there was a crackdown on 20 illegal facilities. IRIN News (2009) reported that, "Operators of illegal clinics may be licensed doctors, but do not employ licensed staff."

Officially, there are no informal medicine sellers in Burkina Faso, though researchers have documented their existence (Tipke et al. 2009). The private pharmaceutical sector essentially consists of registered pharmacies staffed by trained and licensed pharmacists. The bulk of these are found in Ouagadougou and the larger cities.

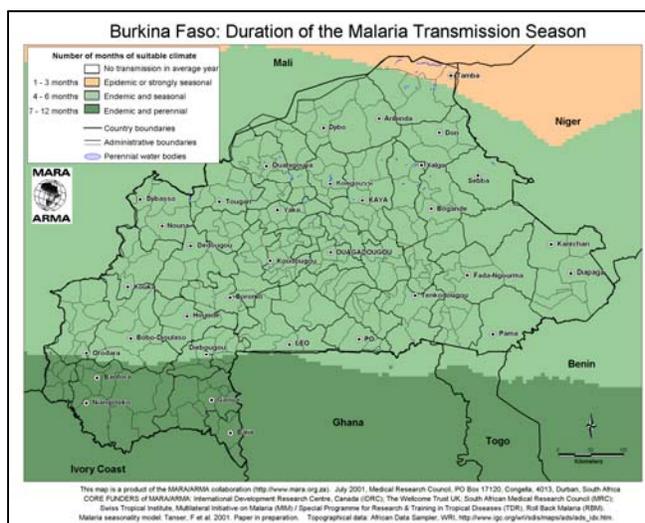
The NMCP is a small unit within the MOH, under the Disease Control Directorate, which is under the Directorate General of Public Health, and comprises three physicians, one pharmacist and 17 staff. Four research centers are engaged in malaria research in Burkina Faso: Centre National de Recherche et de Formation sur le Paludisme, Institut de Recherche en Science de la Santé, Centre Muraz and Centre de Recherche en Santé de Nouna.

EPIDEMIOLOGICAL PROFILE OF MALARIA IN BURKINA FASO

Endemicity

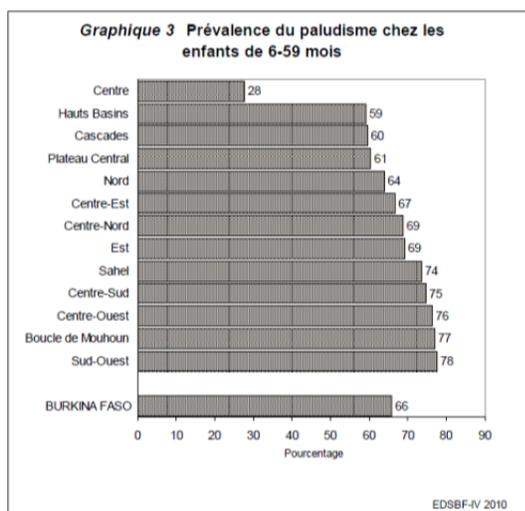
Malaria is the leading cause of morbidity and mortality in Burkina Faso (Kouyaté et al. 2007). Specifically, malaria is highly endemic in the country, with high malaria transmission intensity and three levels of transmission seasons increasing from the north to the south (**Figure 1**). The northern-most Sahelian region is prone to epidemics, with short seasonal transmission of two to three months. The central Sudano-Sahelian region has long seasonal transmissions of four to six months, while the southwestern Sudano region experiences permanent transmission, with an increase in transmission during the rainy season (INSD: DHS-MICS 2010). In fact, almost half of all fevers are attributable to malaria during the rainy season (Bisoffi et al. 2010). Coulibaly and colleagues (2007) studied pregnant women in Boromo District and found a higher prevalence in December (32.2%) than in May (11.9%), which is the end of the dry season.

Figure 1. Malaria-endemic zones in Burkina Faso



The 2010 Demographic and Health Survey/Multiple Indicator Cluster Survey (DHS-MICS) for Burkina Faso documented a high prevalence of malaria in children aged 6–59 months. The average determined by rapid diagnostic test (RDTs) was 66%, and varied by district as seen in **Figure 2**. A 2004 study in northwestern Burkina Faso followed more than 6,000 children aged less than five years for over two years and found through verbal autopsies that 49% of all deaths were due to suspected malaria. All cause and malaria-specific mortality rates were 26.7 (95% CI: 24.2–29.2) and 15.8 (Ramroth et al. 2009).

Figure 2. Prevalence of malaria in children less than five years of age, MICS 2010



Morbidity and Mortality

Malaria is a major public health problem in Burkina Faso, with the entire population at risk for infection. It is the first cause of doctor visits, hospitalizations and deaths in health facilities (GFATM 2008). Pregnant women and children less than five years of age are most at risk. In 2011, malaria was reported as being responsible for 45.4% of health facility visits, 52.5% of hospitalizations and 34.2% of deaths. Children less than five are the most at risk, with 54.2% of reasons for visits, 80.38% of hospitalizations and 87.9% of deaths (MOH 2012b). Most of the malaria burden in Burkina Faso is among children less than five years of age as seen in a mortality rate (MR) of 2.0% for all malaria deaths and 3.1% for children under five.

Malaria in pregnancy (MIP) is a global health concern that results in adverse birth outcomes and poor maternal health. Malaria infection during pregnancy poses substantial risk to the mother, her fetus and the neonate (Sirima et al. 2006), including preterm delivery, congenital infection and reproductive loss (Pell et al. 2011). Placental malaria infection contributes to low birth weight (LBW)—a major risk factor for neonatal mortality and a major contributor to infant mortality (McCormick 1985). As a result of MIP, an estimated 10,000 women and up to 200,000 infants die annually in Africa (WHO 2008). In stable endemic areas, women acquire some immunity to malaria, similar to other adults in the population. Conversely, these women are more susceptible to placental malaria, in which case the woman may not show frank malaria signs and symptoms even though she and her fetus are at risk. MIP can also lead to maternal anemia, placental malaria infection and LBW, with first- and second-born children at highest risk (Newman et al. 2003; Steketee et al. 2001). Ultimately, it may be difficult to diagnose MIP in stable transmission areas; hence, the need to clear malaria parasites using intermittent preventive treatment in pregnancy (IPTp) regardless of symptomatic or asymptomatic presentation.

Malaria and HIV Interactions

Burkina Faso has a low-level generalized HIV epidemic. The country has an adult prevalence of 1%, with 1.2% among adult women and 0.8% among adult men (INSD: DHS-MICS 2010). There is markedly high urban/rural variation, with a prevalence of 2.1% in urban areas versus 0.6% in rural areas. An estimated 120,000 people are living with HIV/AIDS in the country (UNAIDS 2011). Similar to other West African countries with low HIV prevalence rates, Burkina Faso's HIV epidemic is concentrated in higher-risk groups, such as female sex workers (16.3% prevalence in 2005) (CNLS, 2010).

The interaction of HIV with malaria is an important factor in most African countries where the two epidemics overlap and the majority of HIV-infected individuals are exposed to *P. falciparum* (Saleri et al. 2009). HIV infection increases the frequency and severity of clinical malaria (Corbett et al. 2002; Cohen et al. 2005). On the other hand, immune activation and pro-inflammatory cytokines associated with malaria in co-infected individuals may increase HIV replication and accelerate disease progression (Hoffman et al. 1999). Among pregnant women, HIV contributes to higher malaria infection rates, higher parasite density, more clinical illness, increased anemia and diminished response to treatment (Hewitt et al. 2006). In young children, malaria-induced anemia often leads to blood transfusions that may contribute to HIV transmission (Hewitt et al. 2006). Malaria infection also contributes to higher maternal HIV viral load, a risk factor for mother-to-child transmission of HIV.

To assess the relationship between HIV-1 and *P. falciparum* infection, a study was conducted using population-based cross-sectional data from West Africa, including Burkina Faso. The study did not identify an association and suggested that there may not be a malaria/HIV interaction in populations where HIV prevalence is low (Cuadros et al. 2011). Between 2004 and 2006, another study was conducted to describe the clinical presentation and predictors of death among HIV-positive individuals hospitalized in Ouagadougou. The study results showed that, along with other factors (i.e., WHO clinical stage, neurological syndrome, wasting syndrome), malaria infection at admission was a significant risk factor for death (Saleri et al. 2009). To date, there is no mention of HIV co-infection in the NMCP policy documents in Burkina Faso. This absence may not be surprising given that, “malaria might not play an important role in the spread of HIV in populations where the HIV prevalence is low” (Cuadros et al. 2011).

Progress on Malaria Indicators

Three key sets of malaria indicators were spelled out during the 2000 Roll Back Malaria (RBM) Summit in Abuja. They focus on use of insecticide-treated bed nets (ITNs), update of IPTp and prompt and appropriate treatment of malaria episodes. The Monitoring and Evaluation Reference Group of RBM updates and refines these indicators as needed. National indicators are obtained through two main sources: DHS or Malaria Indicator Surveys (MIS) completed every two to five years, and a national health management information system (NHMIS) that captures routine service data on a regular basis.

Table 1 compares the most recent DHS-MICS (INSD 2010) with that of 2003. While few of the current malaria indicators were collected in 2003, considerable progress has been made. That said, it is important to note that the RBM target of 80% achievement by 2010 has not been met for any of the key indicators, including ITN use, accessing IPTp and appropriate case management of malaria episodes.

Table 1. Priority malaria indicators and corresponding data sources for Burkina Faso

INDICATOR	SURVEY/SOURCE PERCENTAGE	
	DHS 2003	DHS-MICS 2010
Proportion of women who received two or more doses of IPTp during their last pregnancy, leading to a live birth within the previous two years	*	10.6
Proportion of households with at least one net of any kind	-	65.5
Proportion of households with at least one ITN**	4.6	56.9
Proportion of children <5 years of age who slept under any net	-	53.2
Proportion of children <5 years of age who slept under an ITN/LLIN	-	47.4
Proportion of children <5 years of age in a house with ITNs who slept under an ITN/LLIN	-	71.3
Proportion of women (aged 15–45) who slept under an ITN the previous night	2.3	-
Proportion of pregnant women who slept under any net the previous night	-	52.7
Proportion of pregnant women who slept under an ITN/LLIN the previous night	2.6	44.5
Proportion of pregnant women in a house with ITNs who slept under an ITN/LLIN the previous night	-	73.7
Proportion of children <5 years of age with fever in past 2 weeks who received ACTs	-	8.7

* 92.5% used chloroquine for prophylaxis at the time of this survey.

** For the purpose of this report, the term “ITN” has been used as most secondary sources of data refer to ITNs. LLINs are mentioned specifically when data sources have indicated LLINs.

Table 2 provides NHMIS data from the past four years (2009–2012). Of note, these routine data begin to capture the use of diagnostic tests and inferred application of test results to prescribing. Routine data help in understanding service delivery issues over time in ways that national surveys do not. Fluctuations in medicine and test use, for example, reflect procurement and supply issues. The likely improvement in use of ACTs based on RDT results over time corresponds not only with training, but also with commodity supplies. **Table 2** also shows an uptake in IPTp1 based on antenatal care (ANC) first registration and a rather steady state of IPTp2 that is consistently below IPTp1, implying missed opportunities or attendance factors.

Table 2. Malaria indicators obtained through routine monitoring and evaluation

NHMIS DATA AND INDICATORS/VARIABLES	2009	2010	2011	2012
Case Management				
Total Outpatient Visits	8,649,053	10,986,072	11,321,013	13,392,989
Malaria Outpatient Consultations	3,986,426	5,428,178	5,030,904	6,569,461
Microscopy Performed in Clinics	148,385	124,066	211,828	227,780
Microscopy Positive	72,370	64,218	63,613	104,040
RDTs Performed in Clinics	182,658	957,296	389,578	4,462,650
% of RDTs performed for suspect malaria	5%	18%	8%	68%
RDTs Positive	123,107	729,482	296,144	3,711,581

NHMIS DATA AND INDICATORS/VARIABLES	2009	2010	2011	2012
% of RDTs performed that were positive for malaria	67%	76%	76%	83%
ACTs provided at outpatient clinics	3,946,366	4,626,704	3,136,894	5,184,068
% of ACTs distributed at malaria consults	99%	85%	62%	79%
% ACTs likely provided based on parasitological diagnosis (RDT positive/ACT provided)	5%	17%	12%	74%
ACTs by Community Agents (ASCs)	646	218,724	719,906	90,810
Malaria in Pregnancy				
Estimated Population of Pregnant Women	759,078	817,404	866,985	-
ANC One Visit	738,907	688,138	564,007	752,622
ANC Two Visits	606,180	593,919	484,533	651,742
IPTp1	549,401	511,115	434,150	532,128
IPTp2	446,297	429,197	348,505	447,648
IPTp2 Coverage from ANC Registration	60%	62%	62%	71%
IPTp2 Estimated Population Coverage	59%	53%	40%	59%
Insecticide-Treated Nets				
Estimated National Population	15,155,849	15,713,422	15,982,625	-
ITNs Distributed	1,130,049	6,943,147	743,002	271,781

DOCUMENTATION METHODS

This malaria program implementation documentation was completed in three main stages. The first was a desk review of available documents, agency reports, published articles and websites. Information obtained was organized and guided by the implementation framework described below.

For the desk review, data were analyzed from existing population-based surveys, such as the DHS-MICS; from peer-reviewed articles, existing documents and reports on malaria in Burkina Faso by the Global Fund; and from recent press releases by leading local news agencies. The review focused on: 1) current status of malaria indicators, 2) extent of malaria program implementation by all partners, 3) best practices/strategies that have supported malaria programming success, and 4) existing bottlenecks in malaria program implementation and how these could be overcome. To obtain a comprehensive picture of the levels of malaria program implementation, a framework was used for analysis. This framework examines the following nine key areas of malaria programming:

- Policy Formulation and Dissemination
- Integration with Relevant Primary Health Center (PHC) Service Areas

- Financial Sources and Adequacy
- Community Involvement/Awareness/Education
- Commodities and Procurement
- Monitoring and Evaluation
- Capacity Building and Training
- Quality Assurance including Supervision
- Leadership, Governance and Structure

The desk review was followed by in-depth interviews of key stakeholders within the MOH and among partner organizations. Gaps and questions arising from the review served as the basis of an informal interview guide that was adapted to the focal area of particular stakeholders. Site visits were conducted to verify actual knowledge and practices at the service delivery level.

The final phase of the review shared the draft report with NMCP staff and selected partners for validation and additional inputs.

As part of the analytical process, the nine components were scored on their level of implementation (**Figure 3**). These scores were derived from a consensus among internal and external reviewers of the document.

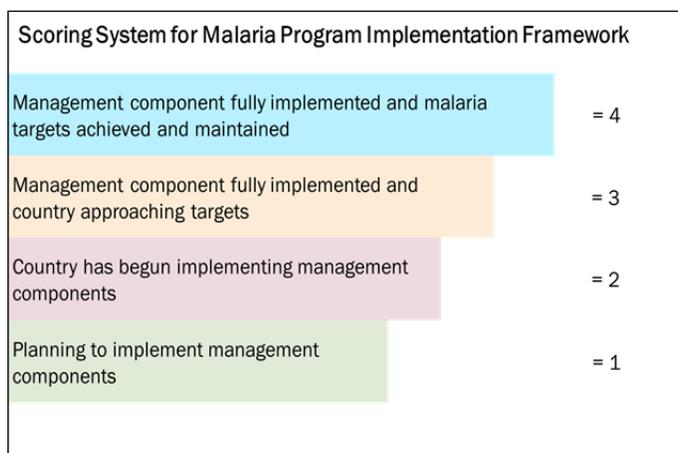


Figure 3. Scoring system for malaria program implementation framework

STRATEGY AND POLICY DEVELOPMENT

Malaria control has been a major component of Burkina Faso’s national health development policy and strategy in the past years and one of the strategic priorities in the country’s anti-poverty policies (INSD: DHS 2010). Burkina Faso has supported and adopted various global initiatives, including RBM, the Abuja Convention and the Millennium Development Goals (MDGs). The first National Malaria Strategic Plan covered 2002–2005, followed by the 2006–2010 plan and the current 2011–2015 plan.

HISTORICAL DEVELOPMENT

The NMCP was formed in 1991 to manage all aspects of malaria activities in the country. A steering committee was put in place to provide advice and guidance to the NMCP and implementing partners. The NMCP is housed within the MOH and falls under the Disease Control Directorate (*Direction de Lutte contre la Maladie*).

Malaria activities are organized at the three levels of the health system (USAID 2011):

- The central level is responsible for developing strategies, mobilizing resources, coordinating partners and evaluating performance.
- The intermediate level comprises 13 health regions with nine regional hospitals, which serve as referral centers.
- The peripheral level comprises 70 health districts with a total of 1,583 health facilities. The private sector includes about 450 for-profit facilities, 45 NGOs and faith-based facilities, and 140 biomedical laboratories.

The NMCP has developed strategic plans to use as a framework for malaria control activities. As a result of the 2000 Abuja Convention, the 2002–2005 National Malaria Strategic Plan was developed with the following objectives: 1) decrease malaria morbidity by 25% and 2) decrease mortality by 25% by improving facility-based and community-based treatment of malaria. These objectives, however, were not met by 2005 due to the high cost of malaria treatment, low coverage of ITNs due to insufficient financing, low level of advocacy and low institutional status of the NMCP within the MOH.

In response to the challenges encountered by the 2002–2005 strategic plan, the 2006–2010 plan was developed with an objective of reducing malaria morbidity and mortality by 50%. The 2006–2010 plan also stated that treatment should be based on biological diagnosis, using blood smears or RDTs in facilities that do not have a microscope. The 2006–2010 plan was created to address three identified challenges by: making ACTs available and accessible to the population, providing free ITNs and IPTp using SP for malaria prevention among vulnerable groups (e.g., children under five and pregnant women), and strengthening the capacity of the NMCP (MOH 2007). The strategic plan included the following activities:

- Make ACTs available and accessible for treatment in health facilities and in the community
- Promote community-based intervention by clarifying the status and role of CHWs
- Make treatment of severe malaria available in referral centers
- Accelerate the scale-up of integrated management of childhood illnesses (IMCI)
- Promote integrated vector management
- Make ITNs available and accessible through different channels in the public and private sectors
- Scale up IPTp through ANC
- Strengthen advocacy, social mobilization and behavior change communication (BCC)
- Strengthen the institutional capacity of the NMCP
- Strengthen partnership and multi-sectoral collaboration in malaria control
- Contribute to the achievement of research on malaria
- Strengthen monitoring and evaluation (M&E)

The new five-year strategic plan (2011–2015) is a complement to the previous strategic plan, with indoor residual spraying (IRS) included as an additional preventive measure (MOH 2011). The NMCP develops annual work or action plans and has an annual assessment of progress that forms part of planning for the next year.

CURRENT STRATEGY FOR 2011–2015

The vision of this strategy is “a Burkina Faso without malaria for sustainable human development.” Likewise, the strategy outlines the following mission:

The mission of the Ministry of Health in the fight against malaria through the NMCP is to ensure universal access to prevention and treatment of malaria across the country for the reduction of morbidity and mortality due to malaria. This strategic plan to fight against malaria for the period 2011–2015 should enable the NMCP to strengthen the control of the disease, in the context of coordination of partners, to strengthen the national leadership.

The overall goal of the strategy is to reduce morbidity by 75%, compared to 2010, and mortality from malaria to a level close to zero in Burkina Faso by the end of 2015. The current objectives of the NMCP are to achieve the following by the end of 2015:

- 100% of suspect cases of malaria will be confirmed and treated with appropriate antimalarials in all public and private health facilities and at community level.
- 100% of pregnant women and children 3–59 months will have received intermittent preventive treatment for malaria.
- 100% of the population sleeps under long-lasting insecticide-treated nets (LLINs)
- 100% of the population in four target regions benefit from IRS (Sud-ouest, Cascades, Hauts-bassins et Boucle du Mouhoun).
- 100% of targeted larval breeding areas are covered by antilarval treatment in the regions of Centre and Haute Bassins.
- 100% availability of quality commodities is ensured at health facilities and community level.
- At least 80% of the population demonstrates behaviors favorable to the fight against malaria.
- 100% of health districts produce quality monthly malaria data from all public and private health facilities and the community level.
- Capacity of NMCP to manage the fight against malaria, including the coordination of partner interventions, is reinforced.

The current NMCP malaria control strategy, therefore, includes prevention, treatment and support strategies. Prevention strategies include vector control through LLIN use and IRS, as well as prevention of MIP. Treatment strategies include early and adequate treatment of malaria using ACTs and the treatment and care of severe malaria cases in referral centers. Support strategies for malaria control include advocacy, information, education communication (IEC)/BCC and monitoring and evaluation of malaria programs. The rapid scale-up of malaria prevention and treatment interventions and the achievement of high coverage rates with ACTs, ITNs and IPTp are common goals of the NMCP and its partners (MOH 2011).

CURRENT LEVELS OF SUPPORT

It is important to examine financial support for malaria in the context of overall health expenditure. From 2005–2008, total health expenditures increased from 202 billion FCFA to 254 billion FCFA—a 26% increase over three years (Zida et al. 2011). Of note, from 2003–2008, household expenditures for health (often known as out-of-pocket expenses [OOP]) declined from 50% to 38% of total health expenditure, public expenditure increased from 26% to 31% and international funding rose slightly, hovering around 30%.

In 2009, the volume of expenditures dedicated to efforts to control malaria in Burkina Faso was estimated at 37.2 million FCFA, compared to 24.5 million in 2008, up from 18.7 million in 2006 (WHO 2009). Unlike the overall picture of sources for the general health expenditures, two-thirds of the spending on malaria in 2009 was “private” or OOP. Public spending was about 20% and international/donor support was around 12%.

Table 3. Sources of financial support to NMCP in FCFA

SOURCE	2009	2010	2011
National Budget	3,032,500	498,262,000	697,782,117
PADS (basket funds)	8,205,770	1,290,060,113	97,272,337
WHO	5,000,000	7,875,520	49,513,800
UNICEF	12,519,990	230,000,000	70,126,500
Global Fund Round 7	378,280,562	21,635,914,971	973,181,441
Plan Burkina (Global Fund PR)	1,000,000	-	1,052,500
Deliver	-	-	34,793,020
USAID ¹	-	3,430,913,010	993,287,078
JICA	11,239,317	-	0
Westergraad	1,311,910	-	0
BMG	-	133,112,629	-
LWR	-	2,250,000	-
FICR	-	225,000,000	-
Other	-	9,861,955	0
Sanofi Aventis	-	-	16,398,925
RTI	-	-	8,028,200
TOTAL	420,590,049	27,463,251,000	3,241,469,168

Source: NMCP Action Plan for 2013, May 18, 2012.

IMPLEMENTATION PROGRESS

Seven specific strategic interventions have been defined to achieve the objectives in the national malaria strategy as outlined below:

- Malaria case management
- Intermittent preventive treatment of malaria in women, pregnant women and children
- Control of malaria vectors
- Management of the supply of commodities against malaria
- Advocacy, information, education, communication and social mobilization
- Epidemiological surveillance, monitoring, evaluation and research
- Program management

¹ As reported by NMCP, does not match with USAID/PMI Malaria Operational Plans, which have allocated \$6 million per year. Most likely due to funds not directly provided to government or NMCP, activities, such as procurement and capacity building, are conducted through cooperating agencies.

A review of progress based on these strategic interventions is discussed below.

CASE MANAGEMENT

Even with the current case management guidelines in place, Burkina Faso continues to face treatment challenges. There are problems with adherence to ACT treatment due in part to complaints that ACTs make people weak (USAID 2009). Many patients delay treatment at health facilities in favor of using local herbs for self-treatment. As a result of this delay, many referral cases require blood transfusions for severe malaria. There are also challenges in treating severe malaria due to a limited supply of blood for transfusion services. There is no provision for management of severe malaria in the Global Fund Round 7 or 8 proposals. USAID has provided treatment kits for the management of severe malaria.

In terms of treatment of MIP, national case management guidelines in 2010 recommended: “Quinine is the drug recommended for treatment of uncomplicated malaria in pregnant women, at a dose of 8 mg/kg quinine base orally (not to exceed 480 mg per dose) every 8 hours for 7 days. In case of intolerance to quinine, refer pregnant women for appropriate management.” Current policy does not include the World Health Organization (WHO) recommendation to combine quinine with clindamycin (WHO 2010). While some countries have adopted the use of ACT for treatment of MIP in the second and third trimesters, based on WHO Guidelines for the Treatment of Malaria (WHO 2010), Burkina Faso has yet to adopt this policy.

Malaria case management has been hindered by the fact that not all providers routinely perform the test for clients presenting with fever. Frequent RDT stock-outs are partly to blame, but health worker performance is an equally challenging factor. As in many countries, health workers trust their clinical judgment for treating “uncomplicated malaria.” They have doubts about the efficacy of RDTs, some of which was reinforced by early training run by the MOH (Gallagher et al. 2010). Performance has rarely been reinforced due to inadequate supervisory tools and visits. This may be changing as stocks and supervision improve, as witnessed in a recent report from field supervision:

During our supervision (March 2012), we noticed that there are some best practices in some health facilities like in Sissamba CSFS, where the ICP said us that since he received RDT stocks, whenever it was necessary to do this test, he did it and he observed that he saved around 76% of ACT because RDT was negative and if he didn't have test, he may have considered all as malaria cases and should have prescribed 100% of ACT (MCHIP project reports).

For case management, the NMCP has developed guidelines to expand diagnostics for biological diagnosis (e.g., microscopy, RDTs) of all presumptive malaria patients in health facilities by 2012. The 2006–2010 National Malaria Strategic Plan states that treatment should be based on a biological diagnosis, using blood smears or RDTs in facilities that do not have a microscope. With Global Fund Round 7 support, the NMCP introduced RDTs into all health facilities without microscopic capability. The initial focus for RDT introduction is use in health facilities, and eventually may be rolled out to the community level for use in community-based case management (USAID 2011). Training for RDT use was originally rolled out from the national to the regional level, then to district and facility levels in six pilot regions (Gallagher et al. 2010).

In 2008, Burkina Faso received its initial stock of RDTs from Global Fund. Then with funding from USAID, RDTs were provided in all regions during 2010. The USAID stocks were supposed to meet the country need until more Global Fund stocks could be acquired, but ongoing delays with the consolidation of the Global Fund contracts led to intermittent shortages and stock-outs in 2011 and 2012.

A rapid assessment of RDT use in Burkina Faso, conducted in July 2010, showed that RDT use was low, with an indication that most people were treated without RDT (Gallagher et al. 2010). The general practice in clinics had been that any person presenting with “uncomplicated malaria” was treated with ACTs—without RDT confirmation. Later, this practice was amended to require all adults be tested first. Finally, when it was expected that RDT supplies would be adequate, the guidelines expanded the requirement of RDT use to all age groups. During the 2010 rapid assessment, old treatment algorithms were still found in some clinics and were not consistent with the updated policy. Regardless of guidelines and training, many health workers continued to believe that RDT results are probably incorrect.

Subsequent incorporation of RDT use with national case management guidelines and in-service training protocols has likely contributed to the increased, though not universal, use of RDTs in clinics. Irregular supply of both ACTs and RDTs is another factor that jeopardizes appropriate case management procedures.

Since approximately 70% of presumed malaria cases are treated in the home, Burkina Faso has supported home-based management of fever since 1997 (USAID 2011). Objective 2 of the Burkina Faso Global Fund Round 8 proposal is to provide home treatment with ACTs for at least 80% of simple malaria cases seen at the community level, in line with the national treatment policy, by 2013 (USAID 2009). Community-based treatment with ACTs was rolled out nationwide in 2010 and 2011. While treatment has been provided free of charge, it is anticipated that treatment will later be sold at the subsidized price at which it is currently sold in public health facilities (USAID 2011).

Community health workers (CHWs) (or *Agent de Santé Communautaire* [ASCs]) have been used for malaria case management for many years, but not in a coordinated way until recently. They used to provide chloroquine in the community until national policy changed to ACTs; then, ASCs were no longer allowed to perform treatment. A return to community case management has come as part of Global Fund Round 8. For Round 8, the country aimed at providing home treatment with ACTs for at least 80% of simple malaria cases seen at the community level, in line with national treatment policy, by 2013. The target for trained ASCs was 9,000. By July 2011, 100% of the target had been achieved. Subsequently, only 16% of 2,725,897 targeted cases had been treated appropriately (GFATM 2011). There has been some resistance by health center staff to community case management, especially when they themselves are having ACT stock-outs.

Table 4. Malaria case management by health service level

LEVEL OF CARE	TYPE OF PERSONNEL	CAPACITY OF CARE
Tertiary University teaching hospitals/referral hospitals	Doctor/specialists	Treatment and management of severe malaria and complications
Secondary Regional hospitals, district hospitals (CMAs), private clinics	Medical doctors, midwives	Treatment and availability of a laboratory for diagnostic confirmation and follow-up; Evaluation of complications
Primary Community health centers (CSPS), dispensaries, private clinics	Nurses, auxiliary health workers	RDT for confirmation of malaria; Treatment of uncomplicated malaria with ACT; Treatment and referral for severe malaria.
Community Household visits	Community health workers (CHWs/ASCs)	Syndromic malaria treatment with ACT

Source: Manuel de formation pour la PEC du paludisme au niveau du district 2010.

Of note, CHWs/ASCs are technically not part of the health system pyramid seen in **Table 4**. Thus, they are not salaried public workers. They are volunteers in the strict sense of the word. The MOH created a new directorate for community work in 2011 in an attempt to coordinate all the different types of CHWs in the country and develop standard protocols for their selection, supervision and duties. Since the CHWs working on malaria at present were recruited through efforts of NGO recipients of Global Fund Round 8, there have been some challenges in trying to bring their work into the overall protocols being developed by the MOH for CHWs.

Table 4 shows CHW reports being integrated with NHMIS data summaries. A gap remains though, in terms of community-level use of RDTs to ensure appropriate treatment, as is the standard in countries such as Rwanda.

INTERMITTENT PREVENTIVE TREATMENT

Burkina Faso was among the malaria-endemic countries in which clinical trials and program evaluations have shown that IPT with sulfadoxine-pyrimethane (SP) is efficacious and effective in preventing maternal anemia, placental parasitemia and LBW (Sirima et al. 2006).

The current strategy recommends prevention of malaria during pregnancy and in children under five through IPT of malaria. For pregnant women, this includes providing them with two doses of SP under direct observation in the second and third trimesters at antenatal consultations (WHO 2004). In July 2012, WHO increased the recommended doses of IPTp to one at each ANC visit after quickening (assuming these are at least a month apart) (WHO 2012). Specifically with the four-visit focused antenatal care approach being implemented, a pregnant woman could have a minimum of three IPTp doses, assuming the first visit might be in the first trimester when SP is not given. Burkina Faso will soon begin the process of updating the IPTp component of the strategy. This update also needs to be taken into consideration within policy in Burkina Faso.

For children, IPT for infants under one year and seasonal malaria chemo-prevention (SMC) for children aged 1–5 has been recommended. This program is receiving attention by the WHO Global Malaria Program, and most countries across the Sahel may start the SMC process during the 2013 rainy season.

MIP prevention with IPTp with SP has been a national policy since 2005 and is included in the national case management guidelines. This inclusion was based on positive results from research conducted by the U.S. Centers for Disease Control and Prevention (CDC) and other partners, including Jhpiego (Sirima et al. 2006). Previous MIP policy guidelines recommended that pregnant women receive initial treatment with chloroquine, followed by weekly chloroquine chemoprophylaxis throughout pregnancy. However, poor compliance with weekly regimens and increased resistance of *P. falciparum* to chloroquine caused the MOH to change its recommendation from MIP chemoprophylaxis to IPTp with SP.

In 2001, the MOH conducted an evaluation to determine coverage of chloroquine chemoprophylaxis and the burden of malaria during pregnancy in Koupéla District (Sirima et al. 2006). The assessment showed moderately high rates of malaria during pregnancy despite widespread use of chloroquine chemoprophylaxis and no association between use of chloroquine chemoprophylaxis and reduction in adverse outcomes, such as anemia, LBW and prematurity. In response to the evidence of chloroquine resistance shown in the study, the MOH implemented a pilot program of IPTp with SP in Koupéla District as part of a package of focused antenatal care in February 2003, which was supported by the CDC and partners including Jhpiego.

In late 2004, a rapid assessment of the pilot program found very high coverage of IPTp with SP among women attending antenatal and delivery facilities. The assessment showed a reduction in the proportion of women with MIP and its adverse outcomes, comparing 2004 rates with those of 2001, when a program of chloroquine chemoprophylaxis was in place. These results suggested that IPTp with SP and ITNs may be a more effective strategy to prevent MIP in Burkina Faso than chloroquine chemoprophylaxis. As a result of these findings, the MOH adopted IPTp with SP for prevention of malaria and its adverse consequences in pregnant women and their fetuses in 2005.

Two important challenges to IPTp are adolescent pregnancy and a gap between ANC coverage and IPTp. A recent study found that pregnant adolescents attended ANC less often than their older counterparts and had lower IPTp coverage rates (Grietens et al. 2010). Similarly, there are missed opportunities in ANC, although 91% of women attend two or more ANC consultations during pregnancy (INSD: DHS-MICS 2010). The same study also found that only 10.6% of women received two doses of SP as part of ANC care for a pregnancy in the previous two years (Grietens et al. 2010).

While the revised National Malaria Strategic Plan for 2011–2015 includes expanding training for the delivery of IPTp during prenatal consultations, a shift in training strategy between 2011 and 2012 may be counterproductive to the effort to strengthen IPTp. In 2011, training sessions targeted two providers per facility. For health centers, this usually included the nurse in-charge of curative care and the auxiliary midwife responsible for ANC. In 2012, to reach more districts, one provider per facility was targeted for training. This person was usually the nurse in-charge of curative care (MCHIP 2011). The gap in training on IPTp and MIP, more broadly among the providers of ANC, should be taken into account in future malaria programming.

NHMIS data in **Table 4** show an increase in IPTp1 coverage in clinics using ANC first registration as a denominator, but no real improvement in IPTp coverage. Since IPTp delivery presently uses ANC as a delivery platform, the fluctuation of ANC attendance over the years using this NHMIS data should be noted. The 2010 DHS reports that nearly 95% of pregnant women surveyed attended ANC at least once during their most recent pregnancy, and 91% attended at least twice. The relatively low coverage of both IPTp1 and IPTp2, compared to targets of 80%, imply that health system factors lie at the heart of the clinic-based coverage problems.

VECTOR CONTROL

Although the strategy mentions antivectional prevention through utilization of LLINs, IRS and antilarval treatments, the IRS component is currently not being implemented. A pilot study in one district did not justify expansion of IRS at this point in time.

Insecticide-Treated Nets

Studies have shown that vector control of malaria (e.g., bed nets and insecticides) produces a significant decrease in overall mortality, especially in high-transmission areas (Lengeler 2004). Despite evidence that ITN use decreases malaria-related morbidity and mortality, ITN use continues to remain low in sub-Saharan Africa, including Burkina Faso. Challenges to ITN use include: longevity of impregnation, insecticide resistance and ensuring that people use them (especially in hot areas). WHO recommends that pregnant women receive an ITN/LLINs as part of routine ANC to be used throughout pregnancy (Pell et al. 2011).

A study carried out in a malaria-endemic area in southwestern Burkina Faso indicated that an initial increase in use of ITNs after a pilot ITN campaign in 2007 declined after several months. The initial high acceptance rate was most likely related to the adoption and spread of a new

technology, whereby people believed it was enough to be an “ITN owner” and accepted a free net because they were offered it, rather than because they planned to use it or thought that they needed it (Toe et al. 2009). The main reasons for the decreased motivation of ITN use was due to community perception of malaria, perceived usefulness of ITNs and problems of having a bulky product suspended in a room (Toe et al. 2009).

The results of the pilot campaign led to the scale-up of a broader national ITN mass-distribution campaign in 2010. Because of gaps in supplies, rather than providing three LLINs per household, two were provided to ensure national coverage. The July 2011 Round 8 progress report indicated that 93% of 8,062,757 LLINs had been distributed through the campaign mechanisms (GFATM 2008). Currently, there is the intention to have national distribution of LLINs through routine services, such as ANC and child immunization, but the availability of LLINs for this has been sporadic. UNICEF has obtained 100,000 LLINs for annual distribution through ANC in two regions only.

Table 2 shows the distribution of ITNs over a four-year period as part of efforts supported by Global Fund grants and USAID to achieve universal coverage. More than 9 million nets have been distributed to a population of around 16 million, the majority through the campaigns in 2009 and 2010. The target of one net per two persons was likely achieved. However, the 2010 DHS shows that even when nets are present in a house, actual use is below expectation. Another national survey is needed to learn the outcome of the massive scale-up in net distribution. With regard to longevity, studies have shown that durability of long-lasting nets is much less than the five years projected originally, and is closer to two to three years—indicating that nets distributed over the recent campaign years will need replacement beginning in 2013. The NMCP action plan for 2013 includes a second mass-distribution campaign for this replacement.

According to a study conducted by Centre National de Recherche et de Formation sur le Paludisme (CNRFP 2012), one year following the net distribution campaign, net coverage reached one net for every 2.48 people, and 95.5% of households reported having at least one LLIN, as compared to 56% reported in the 2010 DHS-MICS. Use by pregnant women and children under five exceeds DHS figures by 20%. The data collection was conducted in December, a lower transmission period and a period when communities in the north may use nets to protect from cold and dust. Further study during the high-transmission period may be warranted.

Indoor Residual Spraying

According to WHO, IRS is most effective when 80% of households in targeted areas are treated (IRIN 2009). With assistance from USAID, IRS was piloted in Burkina Faso in 2010. In late 2009, Diébougou District, a high-transmission area (permanent transmission zone) located in Bougouriba Province in the southern-most zone of the country, was selected for the IRS pilot. This site was also the beneficiary of a pilot universal distribution of LLINs in July 2009, which was done as preparation for the nationwide campaign carried out in 2010. Based on an assessment completed in December of 2009, *carbamates* were selected to begin spray operations. A total of 574 people were trained in spraying and supervision, and 34,284 structures were identified. Spraying began in May 2010 and was completed several weeks later after reaching 33,897 structures and protecting 118,691 people. The initial results indicated high vector mortality. However, later sampling showed variable results, with increasing resistance in some structures. Plans are underway to consider other insecticide options for future spray rounds, in addition to improved training and supervision of spray operators (USAID 2011).

A long-term IRS plan with assistance from several partners, including USAID, can be found in the malaria strategic plan. However, with funding uncertainties due to economic changes

worldwide, the NMCP decided in early 2012 to suspend IRS activities. A key objective of this strategy (currently on hold) will be to build capacity at the national, district and local levels to manage IRS operations, including planning, evaluation, spraying and resource allocation. A key partner in ongoing and future IRS plans in Burkina Faso is the Institute of Research on Health Sciences/Centre Muraz. The Centre Muraz has participated in several vector-resistance studies over the last several years and has five medical entomologists who can provide technical guidance and oversight of vector-control activities. The input of Centre Muraz will be needed to monitor the IRS target zones and to conduct vector resistance surveys before and after spraying, so as to determine the type of insecticide that will be used and help implement appropriate vector-surveillance activities.

The USAID-supported pilot IRS project in one district has come to an end. No clear plans or sources of support for continued IRS deployment have been identified.

Larviciding

The NMCP has an integrated vector management strategy that also includes use of larvicides and environmental management to remove mosquito breeding sites. Larviciding is currently supported by a Cuban-led, West African Economic and Monetary Union (UEMOA)-funded project targeting Ouagadougou.

MANAGEMENT OF SUPPLY OF COMMODITIES AGAINST MALARIA

Procurement of commodities is done by the Central Medical Stores (CAMEG) for commodities not funded by the U.S. President's Malaria Initiative (PMI) and by the USAID | DELIVER PROJECT for PMI-funded malaria commodities. CAMEG was created in 1994 and works in close collaboration with the MOH to provide access to affordable essential medicines. (The essential drug list is based on a WHO standard list of essential medicines.) CAMEG's facilities include a large central warehouse and nine regional depots, which serve Burkina Faso's 70 health districts. Though CAMEG is fully functional and does not appear to need extensive support in managing commodities, there are pharmaceutical management deficiencies and challenges that remain (USAID 2011). There have been significant delays in the procurement of RDTs under the Global Fund Round 7 grant due to the long time spent on discussing the specifications of the RDT to procure, resulting in widespread stock-outs. In 2010, ACT quantities purchased under the Global Fund Round 7 grant were not sufficient to cover annual needs.

RDTs from Global Fund resources were procured and distributed by CAMEG. The RDTs funded by USAID and procured by the DELIVER PROJECT are distributed directly to the districts by the NMCP. Dispatching of USAID-funded RDTs is paid by the MOH, using part of the revolving funds of ACTs. Subsequent procurements were made through the Pharmacy, Medicines and Laboratories Directorate (USAID 2009). There were major stock-outs of RDTs in 2011.

CAMEG procures SP for IPTp using its own budget. The MOH provides funding to the districts to purchase SP from CAMEG, which is given to pregnant women at ANC facilities free of charge.

ADVOCACY, INFORMATION, EDUCATION, COMMUNICATION AND SOCIAL MOBILIZATION

The information, education and communication (IEC) component of the national strategy is being implemented through several approaches. CHWs/ASCs have major health education and promotion duties. They have recently been trained and supplied with malaria flipcharts through Global Fund support. A variety of NGOs are also involved in health education efforts.

IEC materials have been revised over the years and consist largely of posters for clinics. Through the Global Fund grant, flipcharts have been produced and disseminated to CHWs/ASCs. The use of IEC materials by CHWs has been reinforced in several communities by U.S. Peace Corps volunteers who have been trained by Jhpiego/MCHIP on the national malaria strategy. Finally, the NMCP, in collaboration with MCHIP, convened partners who drafted a National Malaria Communications Plan in 2012.

Epidemiological Surveillance, Monitoring, Evaluation and Research

The NMCP engages in a variety of epidemiological and health information activities. Examples of survey data and routine HMIS results are presented in **Tables 3 and 4**. Other activities that the NMCP currently monitors include the procurement and distribution of commodities; the availability of commodities for the prevention, diagnosis and treatment of malaria; health worker performance; efforts in BCC; and the supervision and training of health care workers. To supplement this information, targeted operational evaluations and record reviews are required to answer specific questions or identify problems with program implementation.

The NMCP relies on routine health information gathered at the health facility level, which is transmitted to the district offices, then to the regional unit in charge of HMIS and finally to the central level for its monitoring and evaluation (M&E) component. In addition, there is a national reporting tool (*Rapport de progrès sur la mise en œuvre des activités de lutte contre le paludisme dans les formations sanitaires*) used for reporting malaria indicator results from health facilities.

The USAID malaria monitoring framework aims to complement and support existing NMCP M&E efforts. According to this framework, specific activities are monitored on a regular basis to allow in-country program managers to assess progress and redirect resources as needed. Activities within the major intervention areas (e.g., ITNs, IPTp, case management with ACTs) will be tracked through periodic reports from groups providing commodities, including health facilities and international and local partners. The DELIVER PROJECT provided support to update a database and trained the data managers from all health districts to improve report completeness and data quality.

The HMIS depends greatly on the responsiveness of health facility staff and the interest and commitment of the district health team chief. Annual reports are generated from HMIS, which provide an overview of health information from health facilities. These reports, however, do not include community-level information or report on people who do not attend public facilities. The NMCP also relies on specific surveys to monitor progress toward achieving objectives, including but not limited to, the DHS and the MICS.

NMCP PROGRAM MANAGEMENT AND COORDINATION

The NMCP is involved in intersectoral and intrasectoral collaboration in malaria program management and coordination with research centers, schools, international agencies, other departments within the MOH and the private sector. In addition to the NMCP, the main partners involved in malaria control include the Global Fund, WHO, UNICEF, World Bank, USAID, JICA, Red Cross, West Africa Health Organization and the Roll Back Malaria (RBM) Partnership. The NMCP is also involved in regional collaborations with a network of malaria control initiatives in West Africa. These networks used to include the West African Network for MIP Control (RAOPAG) and currently include RBM West Africa Regional Network (WARN) that provides technical assistance to member countries. The NMCP coordinates financial and programmatic levels of malaria control with support from partners at the international, national and local levels.

Key coordinating bodies include: the Malaria Steering Committee (*Comité de Pilotage*), the Global Fund Country Coordinating Mechanism (CCM) and the RBM Partnership. The Malaria Steering Committee provides directives and guidance to the NMCP and implementing partners, and also works to strengthen partnership and coordination. The committee includes the NMCP, implementing partners such as USAID and WHO, departments within the MOH, relevant government ministries and agencies, and international and indigenous NGOs. The committee meets two times per year, and the NMCP produces a report based on the outcome of these proceedings. These meetings were, however, infrequent in 2010 or preempted due to the mass LLIN distribution campaign (USAID 2011). Instead, the partners review annual malaria action plans (MOH 2009c). In addition, semi-annual technical committee meetings are held. Partners also work with the NMCP for Global Fund grant writing.

The Global Fund CCM meets regularly with health sector stakeholders to review options and plans for submission of proposals to the Global Fund. The CCM has guided successful malaria proposals for Round 2, Round 7 and Round 8, and a new application for the transitional funding mechanism to help sustain the malaria program after the Round 7 and 8 consolidated grant finishes and until regular Global Fund funding resumes in 2013–2014.

Research institutions, such as the Centre Muraz and the National Malaria Research and Training Center (*Centre National de la Recherche et de Formation sur le Paludisme*), are involved in malaria research in Burkina Faso. These institutions provide the NMCP with scientific data to guide malaria control programs. Universities and schools, such as the National School of Public Health (*Ecole Nationale de Santé Publique*), provide long- and short-term training, research and supervision for malaria. The NMCP collaborates with other programs within the MOH, such as: the Maternal and Child Health Directorate (DSME); Directorate for Vaccination Program (DPV); the Directorate for HMIS, which is located within the General Directorate of Information and Health Statistics Studies DGISS); the National Lymphatic Filariasis Program (PNEFL); the Pharmacy, Medicines and Labs Directorate (DGPML); and the National Public Health Laboratory (LNSP). The DSME is involved in MIP activities through the provision of ANC and IMCI. The DPV and DGISS are involved in data collection of malaria indicators in health facilities. The PNEFL works with the NMCP in the implementation of integrated vector control. The DGPML works on the development of antimalaria pharmacovigilance, and the LNSP is involved in quality control of antimalarials and laboratory exams.

The NMCP works with the private sector in a limited manner through training of private clinics in management guidelines. The private sector is, however, not linked to the HMIS for malaria. The NMCP does not meet with wholesalers and private providers of malaria commodities.

Key MIP implementing staff are based in the DSME and are located at district and local levels; there is little evidence of their role in MIP management and coordination. There is a focal person responsible for disease control, but this person is not positioned to supervise frontline malaria service delivery. The maternal and child health (MCH) focal person at the district level may not have specific malaria responsibilities. Although there is collaboration among the NMCP and the various research centers, there is a lack of a formal coordination mechanism to generate research needs and share research results, so that the NMCP is up-to-date on all the latest findings and can integrate these with national policies and guidelines.

SYSTEMS FACTORS INFLUENCING IMPLEMENTATION PROGRESS

POLICY AND STRATEGY FORMULATION AND DISSEMINATION

The NMCP has adopted various malaria policies over the years. There are challenges in the implementation and dissemination of these policies, which include delays in policy implementation and non-compliance with national directives at the health facility level. As noted previously, the MOH adopted ACTs in 2005 as the first-line treatment against malaria. The actual implementation of the policy change took time, and ACTs only became available in government health facilities by the end of 2007 (Tipke et al. 2009).

Although the NMCP has developed guidelines for RDT use for diagnosis of all suspected malaria patients in health facilities, RDTs are commonly not used to define treatment choices for patients. According to an assessment done by USAID in 2009, only 11% (75/691) of patients classified as having simple malaria were tested using RDTs in a health facility in one of the districts. This low use of RDTs is partly due to unavailability and/or stock-outs of RDTs in the country and partly due to attitudes about validity of RDTs compared to clinical judgment. Since March 2012, RDT stocks were available in the whole country, and a better use of them to diagnose malaria cases has been reported. The national reproductive health policies and norms mention malaria only in the context of case management (MOH 2010).

MAJOR FINDINGS	CHALLENGES AND BOTTLENECKS	STRENGTHS AND BEST PRACTICES
<p>Policy and Strategy Formulation and Dissemination</p>	<ul style="list-style-type: none"> • Most recent documents not disseminated to all CSPS. • Policies from other sections of the MOH are vague about malaria components to their programs. • There is a need for more up-to-date epidemiological research on malaria in the country's different regions to better target intervention. • Listing of problems, as often done in various strategic and program reviews, needs to be strengthened by analysis of causes and action plans to address those. 	<ul style="list-style-type: none"> • Malaria case management guidelines have been recently updated. • Discussions are underway for revising and implementing policies as needed in areas such as IPTi and management of severe malaria. • NMCP performance review was done in 2011. • There is a new strategic plan for 2011–2015.

INTEGRATION AND COORDINATION WITH RELEVANT PRIMARY HEALTH CENTER SERVICE AREAS AND PARTNERS

During a meeting among NGOs and other partners for the 2009 USAID Needs Assessment, attendees noted that it was rare for them to gather together with the NMCP to coordinate activities. In December 2012, there was a meeting among NMCP and partners to review the results of the LLIN distribution campaign. The NMCP indicated interest in holding quarterly coordination meetings in 2012, but none have occurred to date.

Reproductive and Maternal Health

ANC services are one of the main primary health center (PHC) service areas in which malaria prevention and treatment services are integrated with reproductive health services. WHO

recommends four visits for ANC during pregnancy (WHO 2006). In Burkina Faso, women attending ANC receive services free of charge, including SP and an LLIN for malaria prevention. According to the 2010 DHS-MICS preliminary report, 91% of pregnant women in Burkina Faso were found to make at least two ANC visits during pregnancy, and 66% of births took place in a health facility. This frequent use of health facilities by pregnant women makes the integration of the malaria prevention with PHC services through ANC feasible.

While these linkages occur naturally at the CSPS level, other than a general mention that malaria prevention and case management should be provided to pregnant women, national reproductive health policy documents do not specify the nature of MIP services that should be integrated with ANC (MOH 2010), except to note that case management of malaria in pregnant women is important.

IPT delivery is closely linked to the access and utilization of antenatal clinics (Grietens et al. 2010). Even with high percentage of first ANC attendance, subsequent visits are much less frequent. The distribution of free SP to ANC is done through the DSME. Both first and second doses are free, though doses need to be paid for from private pharmacies if the facility is out of stock of SP at the time of the ANC visit. This has led to a low usage rate for subsequent doses of SP (USAID 2009). The 2010 DHS also shows that during pregnancies occurring in the two years before the survey, 11% of women took two or more doses of SP, with at least one dose given during an antenatal visit. Even with the high utilization of ANC services, women visit health facilities for ANC fairly late in their pregnancies. An assessment of women in health facilities showed that women did not make a first ANC visit until a median of 28 weeks (Sirima et al. 2006). Late delivery of IPTp1 may result in diminished effectiveness of the intervention unless ITN use is already in place early in pregnancy. Late start may also reduce the total number of doses a woman may receive.

Previously, LLINs have been provided to vulnerable groups during routine ANC and child health. However, there is no consistency in routine distribution. There was even a shortage of nets in 2009 (USAID 2009). Mass-distribution LLIN campaigns can achieve rapid initial coverage, but need to be supplemented by routine delivery to pregnant women through antenatal services and to infants at immunization clinics (USAID 2011).

HIV and AIDS

Integration of malaria and HIV/AIDS services is another area of interest. Currently, both IPTp and HIV testing as part of prevention of mother-to-child transmission of HIV (PMTCT) services are integrated with ANC. The current National Malaria Strategic Plan does not address the integration of malaria and HIV/AIDS services, in particular provision of malaria services as part of care and support (MOH 2011). The HIV Strategic Plan also does not mention malaria specifically, but calls for prevention and treatment of opportunistic infections (CNLS 2010b).

The Global Fund Round 6 HIV grant, which is currently in closure, did address care and support for orphans and vulnerable children and the chronically ill. This grant apparently had a malaria focal person on staff, but specific malaria activities were not mentioned in the grant documents.

A review of the new/current Global Fund HIV grant entitled, “Universal access through securing ARV treatments, strengthening of PMTCT and strengthening HIV prevention for most-at-risk populations,” does not reveal direct mention of malaria. However, the grant has a community strengthening component that uses local community-based organizations (CBOs) to “Ensure treatment, support and care services are available and used by at least 90% of HIV-infected women and their children by the end of 2015” (GFATM 2012). Such supportive care can include malaria treatment and prevention.

The most recent national HIV/AIDS policy for 2011–2015 does mention case management for illnesses suffered by those living with HIV/AIDS, as well as integrated care and support for others affected by HIV/AIDS, such as orphans and vulnerable children. Such activities usually include malaria treatment and provision of LLINs, but the new policy does not include the specific illnesses to be covered.

MAJOR FINDINGS	CHALLENGES AND BOTTLENECKS	STRENGTHS AND BEST PRACTICES
<p>Integration and Coordination with Relevant PHC Services</p>	<ul style="list-style-type: none"> • The Malaria Steering Committee meets irregularly, possibly the last time in December 2010; some members originally appointed are no longer available. • No official program coordination mechanism to bring malaria partners together on a regular basis to address management issues has been established. • No coordination meetings were called last year by NMCP because it was perceived that there had been a number of activities during 2011 where all partners were involved, such as strategic review, new strategy planning, ACT committee and the annual review, though most partners did not see these activities as meeting the needs of ongoing, regular program coordination. • At present, only one donor focuses on providing LLINs as part of routine ANC in just two regions. • Reproductive health policy and related documents mention prevention and case management of MIP, but not what specifically should be done in ANC. • No specific statements for HIV and malaria service integration are found in policy documents of either program. • There is a lack of coordination, activities/programs integration between DSME (in charge of ANC) and NMCP at policy (national), regional and field levels. 	<ul style="list-style-type: none"> • A Malaria Steering Committee was established for the NMCP to offer technical guidance and includes program people, scientists and partner agencies. • De facto integration of PMTCT and malaria services occurs during ANC. • There is an ACT Monitoring Committee designed to coordinate malaria commodities, which meets at least quarterly. • Partners worked together to develop a transition funding request to Global Fund in light of Round 11 cancellation.

FINANCIAL SOURCES AND ADEQUACY

Increased donor funding to combat malaria has resulted in comprehensive integrated malaria control interventions implemented in many sub-Saharan African countries, including Burkina Faso. To implement malaria strategies over time, Burkina Faso has received financial and technical support from partners, such as the Global Fund, USAID and WHO. The NMCP receives funding from the Global Fund, USAID, WHO, UNICEF, PADS/World Bank and the national budget (**Table 2**). In 2008, the country received large increases in donor funding for malaria. A three-year \$12 million World Bank Booster Program grant began in 2008, as did the

\$36 million Round 7 grant from Global Fund. In 2009, Burkina Faso was awarded an additional \$88 million through the Global Fund Round 8 for malaria.

In the most recent National Health Accounts (NHA) report to WHO for 2009, 26% of expenditures were supported by external aid. Looking specifically at the subaccount for malaria, 68% of expenditure is born by households, and the funding from bilateral and multilateral sources accounts for only \$7.9 million or 11% of expenditure, including the first tranche of Global Fund Round 8. The NHA reports a total of \$74.4 million in malaria expenditure in 2009.

The malaria program supported by the Global Fund aims to: reduce malaria-related illness and death by implementing a new antimalarial treatment policy using RDTs to diagnose simple cases of malaria and providing ITNs for all populations at risk, with a priority of delivering nets to pregnant women and families with children less than five years of age. The NMCP has benefited from three rounds of Global Fund funding (Rounds 2, 7 and 8). Round 8 of Burkina Faso's Global Fund application supplements Round 7, which mainly focuses on pregnant women and children less than five years of age, by emphasizing routine distribution of LLINs, confirmation of diagnosis and treatment of uncomplicated malaria cases. Under the Global Fund Round 8 grant, Burkina Faso started delivery of malaria treatment at the community/household level with ACTs in 2010 (USAID 2011). After the cancellation of Round 11 by the Global Fund, Burkina Faso did apply for the transition funding that will maintain supplies of commodities during any gap period between the end of current grants and the restart of Global Fund funding processes (approximately 2014).

In recent years, with assistance from the World Bank, UNICEF, USAID, the Canadian Red Cross, Plan Burkina, JICA and the Global Fund, Burkina Faso has increased ITN coverage and use, to move toward achievement of their goal of universal coverage of one ITN for every two persons nationwide. The Global Fund Round 8 grant provided significant funding for the 2010 nationwide LLIN distribution campaign of more than 7.5 million LLINs. The majority of these LLINs came from the Global Fund Round 7 and 8 grants, but LLINs were also contributed by UNICEF, USAID and the Red Cross to reach the total number distributed between September 2010 and January 2011 (USAID 2011).

MAJOR FINDINGS	CHALLENGES AND BOTTLENECKS	STRENGTHS AND BEST PRACTICES
<p>Financial Sources and Adequacy</p>	<ul style="list-style-type: none"> • Out-of-pocket expenditure by households remains a major source of funding for malaria services. • Ongoing integration of Global Fund Rounds 7 and 8 has led to a hiatus in funding while new grant papers are being signed. • Global Fund Round 11 was envisioned as a means to acquire replacement LLINs and maintain commodity stocks, but its cancellation has created uncertainty. • PADS (common basket) funding amount is reduced at the district level, where implementation needs to occur. 	<ul style="list-style-type: none"> • In response to the Round 11 Global Fund grant cancellation, Burkina Faso turned its intended proposal into a request for transition funding. • Government has provided some funding for malaria medicines. • CAMEG has the capacity to perform cost-recovery if malaria medicines are put into the system.

COMMUNITY AWARENESS AND INVOLVEMENT

Community groups and associations contribute to malaria control through the following interventions as outlined in the 2006–2010 strategic plan:

- Home-based treatment of simple malaria cases
- Referrals of severe malaria cases
- Case reporting and transmission of health data to the primary level
- Distribution, impregnation and re-impregnation of bed nets
- Community awareness and health promotion

NGOs, such as Plan Burkina, the Burkinabe Red Cross and Rotary International, are involved in malaria prevention through the acquisition and distribution of LLINs, as well as community awareness and health promotion (MOH 2006).

The NMCP has developed and validated training and supervision guidelines for malaria prevention, case management and mobilization at the community level (USAID 2009). Normally, each community of 3,000 people or less selects two ASCs, one male and one female. Larger communities can select four ASCs.

Now, ASCs are again used for malaria prevention and treatment, including for pregnant women. Agents provide the following services to pregnant women (USAID 2009):

- Encourage pregnant women to accept IPTp
- Promote awareness of sleeping under ITNs
- Refer pregnant women with suspected malaria
- Trace women who miss ANC appointments (occasionally)
- Promote vector control measures such as environmental management

ASCs have now been incorporated with the consolidated Round 7/8 Global Fund grant process, wherein Plan Burkina is the Principal Recipient (PR) responsible for community intervention. Plan Burkina has four other NGO sub-recipients (SRs) who in turn divide responsibility for the country's 13 regions and the health districts within those. These SRs include Africare, CREDO, RAME and URCB.

Each SR has hired a district supervisor and recruited animators to work with each CSPS. Plan Burkina has used the Global Fund support to print additional ASC manuals, ASC record books, and a 19-page flipchart on malaria cause, prevention and treatment.

The animators train the ASCs in the use of these materials. **Figure 4** shows the parallel relationship between the public and NGO sectors in the malaria work of community ASCs.

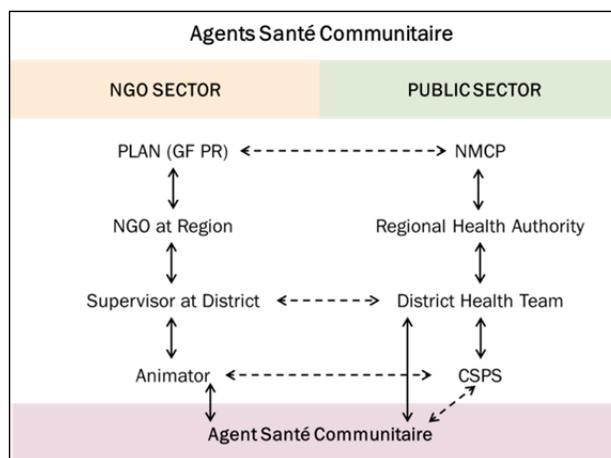


Figure 4. Relationship between NGO and public sector for community case management

ASCs are now trained in case management and referral of severe malaria to health facilities. A key point is that only one of the available ASCs in a community is selected to perform malaria duties. For small villages, this may not present a problem. For larger villages, however, the malaria duties being assigned to only one ASC may put extra pressure on the person, who as a volunteer also has a regular occupation. The NMCP plans to pilot-test RDT use by ASCs in a couple of districts.

The U.S. Peace Corps is heavily involved in the national malaria control efforts. All 173 current volunteers are encouraged to engage in malaria control activities appropriate to their primary assignments in health, education and environment. There are 40 health volunteers specifically assigned to a CSPA from where they also collaborate with the local ASCs in the CSPA catchment area. In July 2011, MCHIP provided training for these health volunteers and some of their ASC counterparts on the national malaria treatment protocols.

An important development was the creation in March 2011 within the MOH of a new Community Health Directorate. Plans had been in the works since 2008 to consolidate community work, since different programs and NGOs had created a variety of CHWs with different tasks. Effort was made to develop an integrated ASC role. The initial efforts at consolidation in 2008 found a vast variety of ASC tasks. Now, efforts are underway to confirm a minimum package for better coordination.

At first, it seems ironic that among existing ASCs, one per village has been selected as a malaria volunteer—an apparent “throwback” to the earlier days of different community workers for different programs. The new directorate has been in communication with the NMCP, Plan Burkina and others about this situation. Yet, since the Global Fund Round 7/8 started before the new directorate was created and it has funds to back up its efforts, there does not seem to be an immediate solution. One ideal solution would be that all ASCs conduct malaria community case management as part over overall community case management.

Also, there apparently is a structure for CHW supervision in the public sector. Each CSPA is supposed to have a minimum of three staff: 1) the clinical officer in-charge, 2) an MCH worker (nurse, midwife), and 3) an “itinerant” health worker. The latter is expected to devote his/her full time work to supervise ASCs and link community work with the CSPA. Problems of staff shortages and limited transportation have often meant that the itinerant worker frequently stays in one location and sees clients in the clinic—at least a sustainable foundation for community support theoretically exists in the public sector. This is backed up by the fact that district health team has a member whose main responsibility is community activities.

MAJOR FINDINGS	CHALLENGES AND BOTTLENECKS	STRENGTHS AND BEST PRACTICES
<p>Community Involvement, Awareness, Education</p>	<ul style="list-style-type: none"> • Normally, ASCs are not supervised by nearest CSPS and are not well-linked to frontline health services. • There is a question of whether the system of animators is sustainable after Global Fund grants finish. • Existing CSPS staff are overworked or case shortages such that designated community outreach staff do not have the time, and often not the resources, to do this job. • There is a lack of sensitization toward the community so that they understand their rights for malaria services. 	<ul style="list-style-type: none"> • A new directorate within the MOH has been created for community health. • There is a NMCP focal point for community level activities. • Each CSPS has a dedicated staff member, an “itinerant” health worker, who should support ASC and conduct other community outreach. • ASCs have been trained in malaria prevention and treatment. • ASCs receive support from NGO animators to link them with CSPS. • Some ASCs have support from 40 Peace Corps volunteers (PCVs) attached to CSPS. • All 170+ PCVs are doing some malaria control work in their respective technical areas/communities.

COMMODITIES AND PROCUREMENT

A major factor responsible for stock-outs is lack of timely placement of orders for non-PMI-funded procurement. A minimum of six months of lead time is needed for most commodities. The lead time becomes even longer, particularly for ACTs, due to global demand and limited stock availability or production schedules. The primary factor in 2011 stock-outs of ACTs was an overestimation of the reduction of malaria cases that would result from the scale-up of interventions, especially at the community level.

There is a committee for ACT monitoring that is responsible for quantification and follow-up on all antimalarial commodities. Both USAID and the DELIVER PROJECT are members of this committee. The quantification of malaria commodities is done by a sub-committee of the ACT committee, composed of NMCP, CAMEG, DSME and DGPML, with technical support from the DELIVER PROJECT. In 2011, the quantification sub-committee was meeting regularly and identified that consumption was exceeding expectations. This information was not acted on by the ACT Monitoring Committee in time to avert a stock-out. The DELIVER PROJECT has been and will continue to work with this sub-committee to build capacity of the quantification team in forecasting and quantification of national antimalarial medicines and development of procurement planning.

Delay in receiving the ACT orders was caused mainly by production constraints with the manufacturer SANOFI, which was the only manufacturer prequalified for ASAQ FDC. The delay in placing orders concerns the non-PMI-funded procurement.

The consolidation of the Global Fund Rounds 7 and 8 grants created further delays. Although the Global Fund rightly saw a need to combine resources to maximize access to malaria medicines for both community and public sector case management, the consolidation process meant that new approval processes were needed, which in effect stalled any funding and placement of commodity orders. Since the national program did not place any orders before the consolidation was completed, it effectively had to wait until after the new papers were signed, thus precluding the possibility of obtaining RDTs and malaria drugs for the 2012 peak transmission season.

In theory, CAMEG and the MOH have some leeway. ACTs put into the system by USAID and other partners in 2011 were distributed through CAMEG at subsidized prices. As with the Global Fund, CAMEG collects 7% of the value of USAID-funded ACTs for operation costs (i.e., management and distribution of the ACT) through the supply chain. The MOH could authorize the procurement of more ACTs using the revolving funds collected. Part of the revolving funds is also used by the MOH/NMCP to distribute to the districts other malaria commodities funded by USAID (e.g., severe malaria kits, RDTs) that are not distributed through the CAMEG system. The ASCs obtain their ACTs from health facilities. With the consolidated Global Funds grants, budgeting has been put aside for the head of the health facility to supervise the ASCs, in addition to the supervision conducted by NGOs.

Districts order ACTs from CAMEG based on distribution to health facilities. This distribution-based procurement system, however, does not allow prediction of need. The districts order according to their available budget, rather than trends in service provision that might reflect seasonal transmission patterns—sometimes leading to insufficient stock to serve all the health facilities. The ACTs are distributed through the MOH supply chain on subsidized prices with a markup at each level of the system. (Under the Bamako initiative cost recovery approach, patients are charged 100 CFA per packet for children under five, 200 CFA for children aged 6–13 years, and 300 CFA for adult treatments.)

PADS, which also has a procurement unit, has been responsible for LLIN procurement. Following the 2010 mass-distribution campaign, an estimated 1.5 million LLINs will be needed annually for routine distribution to newly pregnant women. It is anticipated that Global Fund Round 7 will provide 300,000 LLINs per year, thereby leading to a gap in availability and coverage of LLINs during mass campaigns. To date, the NMCP has not identified any funding source to fill the gap of 1.2 million LLINs (USAID 2011). Note that there were gaps in LLINs for the mass distribution, and decisions were made to give fewer nets per household due to a combination of inadequate quantities and delayed ordering and delivery of the LLINs. Considering that the lifespan of LLINs is not as long as expected—closer to two years rather than five—a second distribution campaign to replace nets is to be planned for 2013. Further, the management of LLINs, because of their size and storage requirements and the long lead times to fill orders, presents special challenges to CAMEG (USAID 2011).

The main challenges with RDTs are that they been procured from multiple sources and estimation of need has been poor. USAID procured RDTs for 2012; but at the time of the assessment in February 2012, there were stock-outs. The USAID-funded shipment was delivered in March 2012 and was expected to last for only 6–9 months. A portion of the RDTs purchased with Global Fund Round 7 funding was delivered in April 2012. Underestimation of the stock needed, as well as some irrational use of RDTs found at the health facilities (e.g., testing all clients regardless of symptoms of suspect malaria), contributed to the inadequacy of stock of RDTs to cover the needs through the end of 2012. Stock-outs of RDTs were seen in most of the districts during the last quarter of 2012 and January 2013.

Private pharmacies sell SP at a low cost of 500 FCFA (around US\$1), although such supplies of SP are inappropriate for treatment and not accessible for IPTp. During the February 2012 data collection period for this report, there was a significant stock of SP at the central level (CAMEG), and the government was working to ensure an uninterrupted supply of SP for IPTp (USAID 2011). Unfortunately, the stock was due to expire in August 2012. CAMEG ordered additional stocks, which did not arrive until late August. There were stock-outs in some facilities during this period due to short shelf life of remaining stocks and delays in getting new stocks out to facilities.

There are plans outlined in the Global Fund Round 7/8 grant for piloting IPTi in the country. Actual arrangements had not been finalized at the time of this assessment.

Some challenges with commodities include:

- The inventory system is not functioning.
- Stock cards are not used at all in health facilities for the products distributed free of charge, such as RDT, LLIN and severe malaria kits.
- Timely commodity planning is not being practiced.
- Forecasting/quantification of need for commodities requires improvement.

MAJOR FINDINGS	CHALLENGES AND BOTTLENECKS	STRENGTHS AND BEST PRACTICES
<p>Commodities and Procurement</p>	<ul style="list-style-type: none"> • ACT quantifications were underestimated based on two assumptions that did not materialize: 1) greater use of LLINs would reduce cases, and 2) RDTs would prevent false presumptive treatment. Nets were not distributed in a timely manner, but phased over 2–3 years. RDT supplies have been inadequate with health workers who do not always respect the results of the tests. • Delays in placing orders cause delays in receiving timely medicine supplies. • Global Fund efforts to merge grants for better access to commodities have actually delayed funding for medicines for the 2012 malaria transmission season. • MOH has yet to decide to use profits from donated ACT sales through CAMEG to order more medicines. • Although policy now permits ASCs to provide ACTs, they experience stock-out since the CSPS that should supply them are also out of stock. • There are frequent stock-outs of ACTs, RDTs and kits for severe malaria case management. 	<ul style="list-style-type: none"> • An ACT committee exists that has the responsibility to coordinate among all donors and agencies involved in ACT and antimalarial procurement and supply management. • CAMEG is capable of ensuring malaria drugs reach the district level. • National budget commitments to provide funds for some antimalarial commodity procurement.

MONITORING, EVALUATION AND RESEARCH

Several health information needs are explored in this section. These needs include timeliness and integration of routine data systems, as well as needs for intervention-specific research needs.

Routine Service Data

Improvements in HMIS have evolved over time. In 2009, when a pre-intervention assessment was undertaken for USAID malaria efforts in Burkina Faso, the collection of malaria data at the front line and flow to the upstream levels was difficult to understand. There were neither simple places to record IPTp data on front-line health forms nor ways to distinguish IPTp1 from IPTp2. Hence, it was unclear how national-level statistics could report IPTp1 and IPTp2 coverage rates.

Recently, major changes have taken place. The individual green ANC cards have clear places to record IPTp and the number of the dosing, as do the individual blue take-home booklets. The IPTp dose is now correctly recorded in the ANC register book. **Table 2** summarizes major malaria indicators from the NHMIS from 2009–2011. Based on either ANC registration of total population estimates, IPTp coverage is lagging behind RBM targets.

Since ASCs are now trained to provide community case management for malaria, they also have record booklets that distinguish treatment by age and record ACTs given and community health education sessions held. Through the community arm of the Global Fund consolidated Round 7/8 grant, NGOs hire animators who, among other duties, compile all the malaria treatment data of the ASCs in the clinic catchment area where they are assigned. These combined data are given to the local CSPPS, as well as to the animators' supervisor at the district. Thus, data flow to the district, region and then on to the NMCP, as well as through the NGO system and the Principal Recipient of the community component of the Global Fund grant. **Table 2** shows that the ASC role in provision of ACTs has greatly increased.

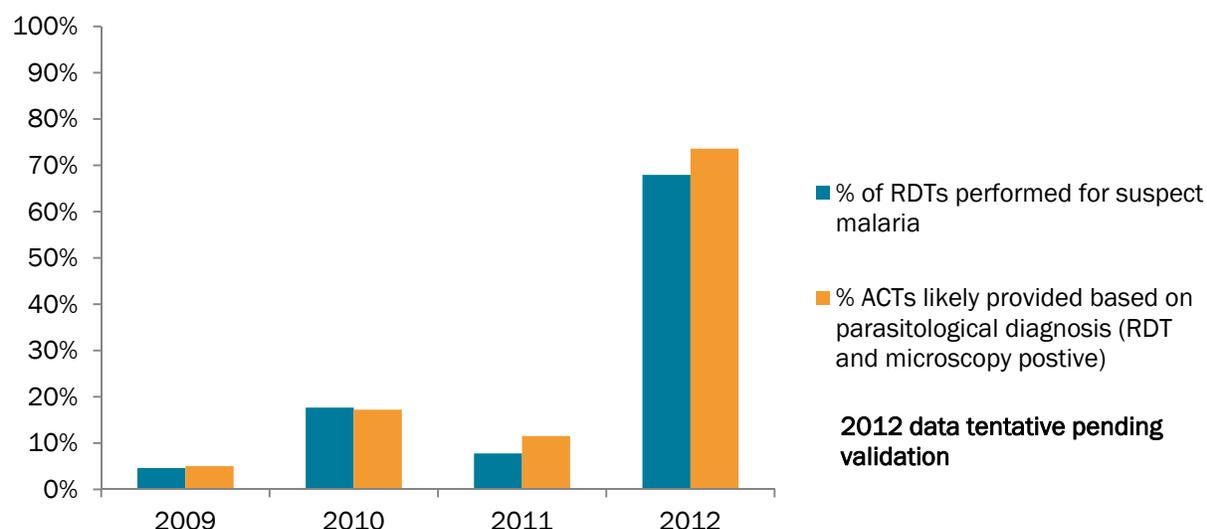
At the CSPPS, the staff compile two summary forms at the end of the month. The regular NHMIS format and the NMCP format. The two forms share in common only the reporting of malaria cases, including uncomplicated and severe, and RDT or microscopy results, if undertaken. In addition to the IPTp results, the NMCP format includes provision of nets, if available, and community education activities. The NMCP format also incorporates the data on malaria treatment and education activities conducted by ASCs. Data on community-based case management is not currently found in NHMIS reports and summaries.

At the district level, an M&E officer compiles data in Microsoft ACCESS formats for both the NMCP and the NHMIS, which is called RASI. These data sets are not merged as the entry formats have different fields, according to one M&E officer. Thus, certain malaria data reach only the NMCP and must be shared further, especially IPTp data to DSME, if proper service coordination is to take place.

The data presented in **Table 2** require reporting from many levels, including the community, health center, district, regional and national levels, in a timely and complete fashion. The Microsoft Excel spreadsheets from which these data were derived break down the information by region and health district. In addition to providing information on population and number of health facilities, they focus exclusively on malaria indicators. Another component of the data is reports of stock-outs.

Figure 5 was extrapolated by MCHIP based on the data in **Table 2** to look at trends in RDT performance for suspect malaria and treatment based on case confirmation, both key elements in the revised malaria directives.

Figure 5. Availability of commodities and provider skills coincide to increase parasitological case confirmation of malaria



Assuming data are reviewed closely and shared with other divisions, it is possible to identify key areas for intervention to improve services. For example, the proportion of women registering for ANC appears to drop over the three-year period. While the proportion of ANC registrants who get both IPTp doses remains steady, the proportion of the population of pregnant women getting IPTp is dropping. It is important to assess why the proportion of women who attend ANC and get IPTp remains low at around 60%—are there major missed opportunities or stock-outs to blame? Ultimately, it is not apparent that these data are used for decision-making or efforts to improve coverage at any level of the health system.

An additional new feature of district data collection is the weekly epidemiological reporting of notifiable diseases, including severe malaria. Each person in charge of a CSPS uses a cell phone to communicate his/her data to the district M&E officer. (They do not send text messages.) These reports are then filed through the regional to the NHMIS levels. The sustainability of some of these improvements does depend on supportive funding for cell phone calls, transportation and other data transmission tools.

Other Data Sources

With support from USAID, a DHS-MICS was carried out in 2010 with a malaria module that was completed in January 2011 (**Table 1**). Data gathered from the DHS will gauge progress toward the coverage targets the NMCP had hoped to achieve by 2010 following the mass distribution of LLINs throughout the country. DHS-MICS has shown that Burkina Faso coverage indicators, as seen in **Table 1**, are well below target levels set by RBM. Even in households that own nets, the target for proportion sleeping under nets was not achieved.

Coverage can only be achieved if commodities are available, distributed and tracked for replacement, in addition to improving human capacity at all levels of the health system. According to the FY11 MOP, the Logistics Management Information System (LMIS) has difficulty getting essential data from health facilities.

Research to Support Malaria Programming

The 2011–2015 National Malaria Strategic Plan notes that there are many national research institutes that could provide relevant field and operational research to strengthen malaria programming in the country.

These institutes include:

- Centre National de Recherche et de Formation sur le Paludisme (CNRFP)
- Centre de Recherche en Santé de Nouna (CRSN)
- Centre Muraz
- Institut de Recherche en Sciences de la Santé
- Institut de Recherche pour le Développement
- Institut Supérieur des Sciences de la Population
- l'Unité de Recherche Clinique de Nanoro

These centers and institutes can and have furnished the NMCP with scientific information to help malaria control. At present though, the National Malaria Strategic Plan voices concern that there is: “insufficient follow-up of research activities and weakness of partnership, communication and coordination between stakeholders acting in research field.” As such, the strategic plan proposes “strengthening MOH institutional and operational capacities for research.”

An example of research to policy includes the 2004 study led by the CDC with Jhpiego as partner. This study documented the benefits of IPTp with SP (Sirima et al. 2006) and actually prompted adoption of IPTp throughout the sub-region, not just in Burkina Faso.

MAJOR FINDINGS	CHALLENGES AND BOTTLENECKS	STRENGTHS AND BEST PRACTICES
<p>Monitoring, Evaluation and Research</p>	<ul style="list-style-type: none"> • Timely submission of data is still a problem. • Dual databases for NMCP and NHMIS overlap in terms of malaria case management, but the NMCP formats include information on LLIN promotion and community activities; discussions are underway to find ways to merge these since health workers complain of extra tasks. • Many malaria research activities are undertaken, but the results are not shared within country by institutions other than NMCP (e.g., CNRFP, Nouna Research Center, IRSS). • Better epidemiological mapping is needed to better target interventions. • Concerns have been expressed about malaria data reporting; malaria as a percentage of in- and out-patient cases does not give a true reflection of prevalence since the denominator is variable. • HMIS data show service delivery gaps; it does not appear that these findings are used for decision-making. 	<ul style="list-style-type: none"> • Summary HMIS data for malaria are now available for review. • ASCs have malaria treatment and health education forms so that their data can now be incorporated with CSPS reporting systems. • Several strong national research institutes exist that have or could contribute to relevant malaria operational research. • Updated ANC record system (registers, cards, booklets) now reflects IPTp doses 1 and 2. • Institution of mobile phone-based reporting of notifiable diseases including severe malaria. • Research was commissioned on LLIN use in 2011, one year after the distribution campaign, and reported very high levels of availability and use of nets, although it was conducted in a low-transmission period (CNRFP 2012). The next DHS-MICS will provide an important comparison.

CAPACITY BUILDING AND TRAINING

In-Service Training

According to the 2011 annual HMIS report, there are 1,500 health facilities across the three levels of the health care system, of which 1,443 are PHCs or CSPS (MOH 2012). These facilities are staffed by 7,835 health professionals (e.g., doctors, nurses, midwives) and 6,576 auxiliary health care workers (e.g., auxiliary midwives, attaché de santé, agent itinerant de santé). Partners have provided assistance to build national capacity in malaria control through in-service training of staff on malaria guidelines as these are updated.

The government of Burkina Faso received assistance from the Global Fund for training of 1,700 public and 400 private facility nurses in malaria prevention and treatment and in supervision of health aides under Round 7 funding. As of 2009, it was reported that most providers in the country have been trained on national malaria guidelines and keep copies of manuals given at the trainings for use at health facilities (USAID 2009), though no training specific to MIP was found at that time. Treatment of malaria in pregnant women and IPTp protocols are covered under the national standard treatment guidelines (MOH 2010a). In addition to prevention and case management, there is training provided in logistics management to store keepers at the district and facility level. However, the 2009 USAID Assessment found that no standard operating procedure manuals were provided to store keepers and that they were not applying what they learned from training.

From October 2010 to December 2012, MCHIP supported the NMCP to update the in-service training curricula, referred to as the Integrated Malaria Training Package (IMTP), based on updated clinical directives for malaria. The IMTP includes both treatment directives and skills for providing clients with information and education about malaria prevention. Key updates to the IMTP included implementation of RDTs for case confirmation, IPTp using SP and LLIN promotion. A total of 2,648 providers and 165 trainers received the training on the updated materials in 2011 and 2012. In the first 20 districts reached in 2011, two providers per facility were trained on the IMTP. While in 2012, in order to expand to all 70 districts nationally, training sessions targeted one provider per facility. Scaling up the reach of training by reducing the targeted cadres to be trained may have had an inadvertent negative effect on IPTp specifically. Although auxiliary midwives who provide ANC were included in training sessions in the first 20 districts reached to scale up the reach of training with the same resources, this was cut to one provider per facility, which was usually the nurse in-charge, who is often not directly providing ANC services.

To date, training has not focused on the private sector. Private sector health care is limited and primarily found in the largest cities. The public sector is normally in charge of quality assurance and follow-up, including training, supervision, control and inspection of the private sector. In general, when training sessions are planned, the public sector rarely integrates private sector health workers because, according to them, the training sessions do not fill the gap for training public health providers and, as such, do not prioritize private sector staff.

NMCP Capacity

The number of the NMCP staff is insufficient for the management of a national program of its size (**Annex 1**). The NMCP staff includes three physicians, two pharmacists, nine public health nurses, two hospital managers, one communications specialist, two accountants and support staff (five drivers). Eight of the 23 positions are funded with Global Fund resources, while the rest are civil service positions. The current staff have not received technical and management training. Resources are also needed for the implementation of routine activities, such as monitoring and supervision. The NMCP relies on national health staff comprising pediatricians

or public health officers from the MOH for field activities, such as training, supervision and evaluation.

With MCHIP support, work was begun to clarify job descriptions and initiate quarterly action planning among the different technical and administrative teams within the NMCP. Further support is needed to build staff capacity to carry out their job functions and manage the technical support role of the NMCP to regional and district health directorates.

Pre-Service Training

The National School of Public Health (*Ecole Nationale de Santé Publique* or ENSP) trains a variety of cadres to work at the front line. The ENSP trains health staff who work in districts and local health facilities. The school offers courses mainly for primary-level health workers, though it needs to update its curricula on malaria (USAID 2009). During the October 2009 USAID assessment, the team discovered that there was little formal malaria content spelled out in the various school curricula.

A review of sample curricula in 2011 revealed that malaria is mentioned as a topic. For example, in the Programme de Formation des Infirmiers et Infirmières Brevetés (IB) (ENSP Undated), malaria is listed as a disease under general case management and pediatric case management, but the details of what medicines are to be used and how diagnosis is to be determined are not provided. These training guides do not specify learning methods to be used. There is general mention of “prevention of malaria in pregnancy” and the use of “chemoprophylaxis” during pregnancy, which is no longer national policy.

Likewise, the training program/guide for accoucheuses brevetées (AB) lists malaria as a topic for disease case management, as well as chemoprophylaxis and prevention of malaria during pregnancy (ENSP 2008). A curriculum committee has been formed at the ENSP to review these and the programs for other cadres, with a view to harmonizing the curriculum with current national policy and to design appropriate training content and methods for teaching.

At present, the ENSP has no formal relationship with the NMCP. In July 2011, MCHIP did provide training to 60 teaching staff of the various schools within the ENSP. Feedback was positive. Participants noted that the pre-test showed weaknesses in their malaria knowledge, which motivated them to learn from the workshop. They subsequently requested that this training be extended to all 120 teaching staff.

During 2012, MCHIP supported the review and revision of the malaria components of training curricula for the seven cadres trained by ENSP schools. Members of the faculty participated in an Effective Teaching Skills course to strengthen their ability to convey key knowledge and skills to students.

Currently, there are three categories of teaching staff: 1) permanent/fulltime, 2) contract/part-time and 3) facility-based trainers/preceptors. Occasionally, staff from the MOH provide some guest lectures in their specialty area (e.g., HIV, TB), but none from NMCP has lectured recently at ENSP. Further, some units within the MOH have provided teaching materials and aids. For example, models were provided for teaching family planning and emergency obstetric care, but no learning materials or job aids have been received from the NMCP.

MAJOR FINDINGS	CHALLENGES AND BOTTLENECKS	STRENGTHS AND BEST PRACTICES
<p>Capacity Building and Training</p>	<ul style="list-style-type: none"> • Malaria topics are listed in most curricular outlines of programs offered by ENSP, but are not elaborated in terms of content or teaching methods. • Salaries of approximately one-third of NMCP staff are currently covered only by Global Fund, though some may be regularized later this year. • Only two NMCP staff have advanced public health training; more opportunities are desired. • At the district and CSPS levels, parallel staffing structures exist for community outreach personnel between the MOH and the PR for the Global Fund Round 7/8 grant. • The number of CSPS has increased by about one-third from around 1,200 to 1,600 since 2009, requiring more resources for training and supervision. 	<ul style="list-style-type: none"> • The ENSP has established a committee to review aspects of malaria in curricula for all courses taught. • Technical training has occurred for about half of ENSP staff based on the revised malaria case management guidelines. • Each unit within the NMCP has been given instructions for developing appropriate job descriptions. • In the past two years, nearly 2,700 frontline CSPS staff have received in-service training on the updated malaria guidelines.

QUALITY ASSURANCE INCLUDING SUPERVISION

Supervision is performed in an integrated fashion, where facilities are visited and monitored for the entire package of services they provide. Supervision is carried out by a team at the district level. However, funding constraints sometimes limit the frequency of supervisory visits (USAID 2011). Due to varying skills/roles of the supervision team members and the limited amount of time that they have to review multiple components within a health facility, these visits are not able to look closely at the correct performance of procedures and protocols or at specific diseases, such as malaria. The documentation of the supervision findings is very poor and does not allow for effective follow-up of recommendations.

There are also malaria-specific supervisory activities done separately with support of the NMCP. Although the malaria supervision guidelines have been updated recently, they are still applied separately from regular health center supervision by the district teams. These centrally led visits are only able to reach a limited number of facilities. In 2012, the funding allocated from Global Fund to NMCP to conduct these visits was unavailable due to contracting delays. Documentation and communication of findings of these NMCP-led supervision visits are inconsistent and contribute to poor follow-up. The limited reach of these supervision visits means that a facility is unlikely to be visited again within six months or a year. In addition to the time and cost demands of supervision visits, this sort of quality assurance may be too infrequent to effect and/or register behavior change and improvements in service quality in facilities. Development of performance standards based on malaria directives may be one way to engage providers and facility managers in their own performance monitoring. External supervision can use performance standards to guide visits and support based on a commonly known set of criteria.

Job aids and communications materials can help to improve performance and consistent care. Seven job aids were developed and distributed: focused antenatal care, including the prevention of MIP using IPTp; treatment algorithms for management of simple and complicated malaria; use of RDTs; assessment of consciousness (Blantyre Coma and Glasgow Coma scores for infants and for children and adults, respectively); and equivalence of different formulations of quinine

available in the country. Brochures for community distribution include prevention of MIP, general prevention strategies and management of simple cases of malaria, including the importance of completing three days of treatment. Through the Family Health Directorate, 1,800 job aids and 36,000 leaflets related to MIP were disseminated. A further 10,800 job aids and 72,000 leaflets related to case management, use of RDTs and malaria prevention strategies were provided to NMCP for distribution. These materials are to be distributed to 1,600 health centers, 45 district hospitals and 12 regional and national hospitals. During malaria supervision visits in 2012, the revised job aids were inconsistently available in facilities, with better distribution of MIP materials than other job aids (MCHIP 2012).

MAJOR FINDINGS	CHALLENGES AND BOTTLENECKS	STRENGTHS AND BEST PRACTICES
<p>Quality Assurance including Supervision</p>	<ul style="list-style-type: none"> • Job aids on case management made available to NMCP in October 2011 have not consistently reached CSPS, based on supervision reports. • Malaria supervision by district teams for CSPS staff is an additional activity to the existing integrated supervisory process. • There is no standardized documentation on follow-up of supervision. 	<ul style="list-style-type: none"> • Job aids on most aspects of malaria case management and service provision have been developed. • Updated supervisory checklists for malaria service delivery have been developed. • With USAID support, 165 district-level supervisors have been trained to use the new supervisory guidelines; mentored and monitored supervision is taking place in 20 districts, with more supervisor training in 2012.

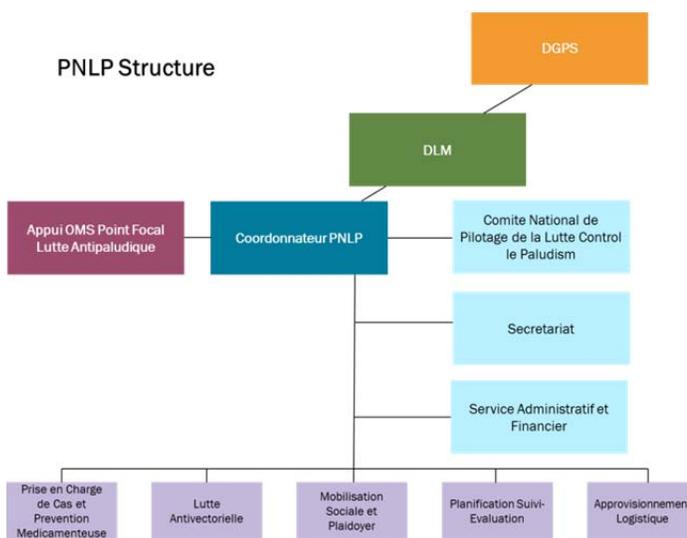
LEADERSHIP, GOVERNANCE AND STRUCTURE

Annex 1 lists current NMCP staff. They can be grouped in six functional categories, five of which are technical. The technical groupings are: 1) case management, 2) vector control, 3) planning, monitoring, evaluation and documentation, 4) communications and mobilization, and 5) logistics/procurement. The sixth group is administration. An official organogram appears in **Figure 6**.

There is no official deputy coordinator. - Although this appears to be a general structural challenge in other sections of the MOH, it is especially troublesome to malaria partners when the NMCP coordinator is unavailable, and no one is available to make timely decisions in such a large program effort.

Further, the position of NMCP within the MOH may hinder timely decision-making, coordination with donors and communication with regional directors in order to disseminate information to the facilities. Despite the health care burden of malaria in Burkina Faso, malaria is not prioritized as strongly as it could be. This may also be a function of the resources available for malaria, as compared to HIV, maternal health, etc.

Figure 6. NMCP organogram



MAJOR FINDINGS	CHALLENGES AND BOTTLENECKS	STRENGTHS AND BEST PRACTICES
Leadership, Governance, Structure	<ul style="list-style-type: none"> • No deputy coordinator exists, a common situation in many units; delegation is weak. • The positioning of the NMCP under the DLM discourages timely decision-making and relations with other program partners, including those within the MOH, although this has not inhibited coordination in other countries where ministries of health give high priority to malaria. • Delegation appears weak, in that, many NMCP staff attend functions and workshops where only one or two key persons would suffice. • Number and quality (skills) of the staff. • Workshops are better prepared in terms of logistics than technical matters. • Partners are not involved in preparation of meetings and often are informed too late. • Some meetings among NMCP and partners are not held on time (or not held at all). • There is weakness of coordination among NMCP's units. 	<ul style="list-style-type: none"> • Major program areas are covered by staff. • There is good structure with major components as recommended by RBM: case management unit, M&E unit, communication unit, vector control unit, logistics and procurement unit, financial and administration unit. • Staff are motivated, though overstretched.

DISCUSSION

The NMCP was established in 1991, but did not have its first national malaria strategy until 2002. Some 20 years after inception and 10 years after its first strategy was formulated, the NMCP has been able to grow its staff and attract substantial donor funding. Despite national policies and progress toward the prevention and control of malaria, gaps remain, as well as future opportunities at community, facility, regional and national levels. This documentation is an important reference and tool to initiate dialogue at the national level among NMCP, other MOH directors and supporting partners including donors. The identified challenges and strengths afford Burkina Faso to examine the malaria program in more detail and make strategic decisions for accelerating malaria prevention and control and attaining nationwide coverage.

An important change over time has been seen in the area of human resources development. In 2009, major emphasis was on in-service training, not only to bring existing staff up to date on malaria service policies and procedures, but also to make up for inadequate and out-of-date coverage of malaria topics in the basic training offered by the ENSP. Now, not only have in-service training materials and accompanying job aids been updated, but they have also served as the basis for a curriculum review at the ENSP.

Progress at the community level has included reinvigoration of the CHW program. However, challenges remain, especially in the scale-up of prevention and treatment at the community

level that depends on adequate supply of commodities, as well as eventually extending the use of RDTs to CHWs.

Another challenge that has seen a slowly evolving solution is the use of parasitological diagnosis using RDTs at the health facility level. In 2009–2010, RDTs were scarcely available and training programs instilled more skepticism than acceptance. As of 2012, one can see greater use of RDTs generally, as well as their use in rational case management. The main challenges rest in the procurement and supply processes to better forecast need and ensure timely supplies.

At the governmental level, there are weakness in the implementation of advocacy for and sensitization on malaria, insufficient M&E of interventions, low proportion of trained health workers, lack of funding for malaria control and delay in disbursements. At the nongovernmental level, there is insufficient application of national guidelines on malaria control, insufficient involvement of civil societies and a low proportion of health workers in the private health sector. At the community level, there is poor utilization of ITNs and other preventive measures, non-implementation of ACTs and insufficient motivation of CHWs. These weaknesses in the malaria program have led to gaps in coverage of prevention and treatment of malaria in Burkina Faso.

Even with the scale-up of LLIN coverage to households, gaps still remain in actual LLIN use by vulnerable groups (e.g., pregnant women, children). Hopefully, the next DHS will report better LLIN use figures. At the same time, the nets distributed during the last campaigns will soon need replacement, and plans for this are urgently required.

Some progress has been made in the prevention and treatment of malaria in Burkina Faso over the years. Per the Global Fund Round 7 Progress Report (GFATM 2013), the following achievements were realized in malaria control:

- The number of children under five with uncomplicated malaria treated with ACTs in health facilities following national guidelines has exceeded targets every quarter from mid-2008 through the end of 2011. In total, 1.7 million children were treated in October–December 2009, and 2.5 million were treated in the peak transmission period of October–December 2011.
- The number of people over age five treated with ACTs in health facilities has also exceeded targets: 1.5 million people received ACTs in October–December 2009 and 2.2 million people received ACTs in October–December 2011.
- 19.5 million persons reached by BCC (120% of target, October–December 2011)

However, targets were not reached for the following indicators:

- Number of persons suffering from uncomplicated malaria treated with ACTs by CHWs following national guidelines (4% of target in January–March 2010, last reported period; targets subsequently reduced)
- Percentage of malaria cases confirmed from cases suspected in health facilities (39% of target for October–December 2011)
- Percentage of people who know three clinical signs of malaria and two measures for prevention (55% of target, January–March 2010)

Overall, the best-performing areas of program management and implementation are policy development, capacity development and training, and community involvement. Burkina Faso has updated its policies and directives in a timely manner, and dissemination through training has reached all districts in recent years. In addition, the MOH is in the process of

institutionalizing community involvement through the creation of the Community Health Directorate. Other areas are challenging and bespeak of the difficulties in obtaining coverage, particularly the inter-related areas of finance and commodities. Coordinating bodies exist on paper. These bodies, however, are not meeting regularly, which could be part of the reason why integration of malaria with various public health and primary care efforts are weak. (Actual scoring of these nine elements is found in **Table 5**.)

Policy Formulation and Dissemination

While Burkina Faso has adopted multiple new malaria policy directives, putting those policies into practice may not be so simple. Targeting policy dissemination at all points of care will help to increase malaria prevention and control practices at all points of care: community, CSPS and hospital level. Having policies in place, while a critical and necessary step, is not enough to ensure effective malaria care. Appropriate stocks (e.g., ACTs, RDTs, SP) need to be available to ensure clients receive correct care. Also, as Burkina Faso's epidemiological situation changes, monitoring and understand these changes will be important to inform how to direct resources and prioritize malaria support.

Policy is a moving target. The transformation of IPTi by WHO's Global Malaria Program into seasonal malaria chemoprophylaxis in the countries of the Sahel requires updated guidelines and action plans. Last year, the Global Malaria Program reframed the use of IPTp in countries of moderate to high endemicity to require IPTp being offered at each ANC visit after quickening. If there have been challenges in completing two doses of IPTp during pregnancy to date, the future need to reach three or four doses will require more creative policies, guidelines and action plans.

Integration with Relevant PHC Service Areas

The disproportionate impact malaria has on young children and pregnant women necessitates ensuring appropriate integration with primary and MCH services. While realized by default at the CSPS, coordination and collaboration at the national level is less than optimal. Commitment from the NMCP and across directorates to improve malaria outcomes and work together is clearly in place. However, time and resources to support effective program coordination resulting in efficient implementation practices and non-duplicative efforts is lacking. As well, harmonizing national-level documents among the NMCP and MCH programs would result in more focused and targeted support to frontline providers.

An achievement score between 1 and 4 was assigned to each of the nine components found in the analysis framework, as indicated in **Table 5**.

Table 5. Achievement scores for the nine analysis framework components

COMPONENT	SCORE	COMMENT
1. Policy Formulation and Dissemination	3.5	<ul style="list-style-type: none"> • Existence of a policy, taking account of international initiatives against malaria • Key updates in 2012 • Integration of control activities against malaria at the operational level • Dissemination to regions and districts lags behind policy updates
2. Integration with Relevant PHC Service Areas	2.5	<ul style="list-style-type: none"> • Integration of the malaria control program in health district level activities; efforts are still needed to harmonize with other programs on MCH (e.g., IMCI, focused antenatal care, vaccination)
3. Financial Sources and Adequacy	2	<ul style="list-style-type: none"> • Specific malaria budget line exists • Insufficient continued/dependable funding from all sources for malaria activities • No clear direction to regions and districts to consider malaria as a priority for funding at the peripheral level
4. Community Involvement, Awareness and Education	3	<ul style="list-style-type: none"> • Implementation of community case management; support of civil society positive, but attention needed to sustain the achievements • Community case management based on syndromic treatment, discordant with facility protocols
5. Commodities and Procurement	2	<ul style="list-style-type: none"> • Weakness in medicine forecasting; frequent stock-outs • Setting up a monitoring committee for the management of ACT can improve this
6. Monitoring, Evaluation and Research	2	<ul style="list-style-type: none"> • NMCP maintains a database of regional level data with more malaria-specific information to conduct reviews; separate from NHMIS; weak analysis • Data collection tools need revision • Data recording and reporting in facilities could use strengthening along with clinical training • Coordination between NMCP and Research Institutions weak
7. Capacity Building and Training	3	<ul style="list-style-type: none"> • General lack of human resources in health • Improvements in qualified human resources at NMCP • Existence of an integrated training module for malaria and national trainers; at least one provider from every facility trained during 2011 and 2012
8. Quality Assurance including Supervision	2	<ul style="list-style-type: none"> • Existence of a national guide for supervision; low quality of supervision (also low level of implementation) at the health district; lack of effective monitoring and follow-up of the recommendations of supervision
9. Leadership, Governance and Structure	2	<ul style="list-style-type: none"> • Proper structuring of the NMCP with the various units as recommended by international institutions; weak managerial capacity of the NMCP • Delegation and division of responsibility to be strengthened
TOTAL/SCORE	22/36	

RECOMMENDATIONS

Table 6. Recommendations

AREA	RECOMMENDATIONS	PARTNERS RESPONSIBLE
1. Policy Formulation and Dissemination	<ul style="list-style-type: none"> Continue dissemination of malaria policy, strategic plan, guidelines, training manuals; guide supervision at all levels of the health system, through training, supervision and MOH channel Accelerate the review, updating, adaptation and dissemination of new policy policies and programs, such as revised IPTp guidance, seasonal malaria chemoprophylaxis and appropriate surveillance strategies in areas with the potential for near-term elimination 	<p>NMCP</p> <p>Technical assistance from WHO, USAID</p>
2. Integration with Relevant PHC Service Areas	<ul style="list-style-type: none"> Work with central departments (DSME, DPV, DCH) for harmonization of guidelines for prevention and/or support for some targets (IMCI, PMTCT, IPTi) Work with programs in charge of the fight against TB and HIV as well as IMCI for better integration of strategies against these diseases 	<p>Directorate of Disease Control to link NMCP with other directorates</p>
3. Financial Sources and Adequacy	<ul style="list-style-type: none"> Advocate for increased mobilization of resources for the fight against malaria; mining companies or the booming mobile phone companies could make their contribution Explore of private sector resources and interest 	<p>MOH and partners</p>
4. Community Involvement, Awareness and Education	<ul style="list-style-type: none"> Support the new Directorate of Community Health (DCH) in: <ul style="list-style-type: none"> Development of the community health care package, specifically, malaria unit Training CHW supervisors with the right knowledge and skills to effectively support CHWs 	<p>NMCP to coordinate input from NGOs and the DCH, as well as other community service units of ministries, such as Agriculture</p>
5. Commodities and Procurement	<ul style="list-style-type: none"> Support the monitoring committee in management of ACTs to coordinate the estimated need, supply and inventory tracking inputs Link with DCH and NMCP to ensure adequate supplies of ITNs and SP at ANC Link with DELIVER, CAMEG and others to ensure adequate supplies of RDTs Update and disseminate guidelines for rational use of inputs 	<p>NMCP, DGPMML and partners</p>
6. Monitoring, Evaluation and Research	<ul style="list-style-type: none"> Conduct a study on the epidemiology of malaria to better describe the presentation of the pathology Ensure a sharing of results of studies on malaria in participants in the fight against malaria Build capacity at all levels of health system to better monitor and use data for decision-making. This should be integrated with routine training and followed up during supervision; could also require targeted M&E training Review data collection system at central level to improve efficiencies Capacity development of NMCP staff to analyze and use data 	<p>NMCP, research centers and partners</p>

AREA	RECOMMENDATIONS	PARTNERS RESPONSIBLE
7. Capacity Building and Training	<ul style="list-style-type: none"> • Continue training providers targeting biomedical technologists, providers of reference structures, such as district hospitals (CMA), regional hospitals, health facilities and private denominational • Build on existing scale-up approach; also target ANC providers to ensure effective care • Monitor the process of revising training curricula in schools of paramedical staff training • Initiate a dialogue with the Training unit and Research Health Sciences at the University of Ouagadougou for updating training curricula 	NMCP and partners
8. Quality Assurance including Supervision	<ul style="list-style-type: none"> • Develop standard tools for monitoring the implementation of the recommendations of supervision • Introduce quality improvement process to ensure managers and providers have the knowledge and skills to assess their work against performance standards, address gaps and improve care 	NMCP and partners
9. Leadership, Governance and Structure	<ul style="list-style-type: none"> • Support the NMCP to monitor the process of strengthening its management capacity following the workshop held in May 2012 • Reinvigorate malaria steering committee and technical sub-working groups • Advocate for a better positioning of NMCP within MOH 	NMCP and partners

References/Bibliography

- Bissofi Z et al. 2010. Accuracy of a Rapid Diagnostic Test on the Diagnosis of Malaria Infection and of Malaria-Attributable Fever during Low and High Transmission Season in Burkina Faso. *Malaria Journal*; Volume 9:192.
- Centre National de Recherche et de Formation sur le Paludisme (CNRFP). 2012. Evaluation de la couverture par les moustiquaires imprégnées d'insecticides au Burkina Faso après la campagne de distribution universelle en 2010. Ouagadougou: CNRFP.
- Cohen C, Karstaedt A, Freaun J et al. 2005. Increased prevalence of severe malaria in HIV-infected adults in South Africa. *Clin Infect Dis*; 41: 1631–1637.
- Conseil National de Lutte Contre le SIDA et les IST (CNLS), Burkina Faso, 2010. Rapport UNGASS 2010 du Burkina Faso. <http://www.unaids.org/en/dataanalysis/knownyourresponse/countryprogressreports/2010countries/>
- CNLS, Burkina Faso. 2010b. Cadre Stratégique de Lutte Contre le VIH, Le SIDA et les Infections Sexuellement Transmissibles (CSLS) 2011–2015.
- Corbett EL, Steketee RW, Ter Kuile FO et al. 2002. HIV-1/AIDS and the control of other infectious diseases in Africa. *Lancet*; 359: 2177–2187.
- Coulibaly SO, Gies S and D'Alessandro U. 2007. Malaria Burden among Pregnant Women Living in the Rural District of Boromo, Burkina Faso. *Am. J. Trop. Med. Hyg.*, 77 (Suppl 6), 2007: 56–60.
- Coulibaly SO, Nezien D, Traore S et al. 2006. Therapeutic efficacy of sulphadoxine-pyrimethamine and chloroquine for the treatment of uncomplicated malaria in pregnancy in Burkina Faso. *Malaria Journal*, 5: 49
- Cuadros DF, Branscum AJ, García-Ramos G. 2011. No Evidence of Association between HIV-1 and Malaria in Populations with Low HIV-1 Prevalence. *PLoS ONE* 6(8): e23458.
- De Allegri M, Marschall P, Flessa S et al. 2009. Comparative cost analysis of insecticide-treated net delivery strategies: sales supported by social marketing and free distribution through antenatal care. *Health Policy and Planning* 2009; 1–11.
- Ecole Nationale De Sante Publique (ENSP), Ministere de la Sante, Burkina Faso, Secretariat General. 2008. Programme De Formation Des Accoucheuses Brevetees (AB).
- Ecole Nationale De Sante Publique (ENSP), Ministere de la Sante, Burkina Faso, Secretariat General. Programme De Formation Des Infirmiers et Infirmieres Brevetees (IB). Undated.
- Gallagher S, Brieger WR, Coulibaly SO, Ky A et al. 2010. Rapid diagnostic tests for malaria in Burkina Faso. USAID/MCHIP.
- Global Fund to Fight AIDS, Tuberculosis and Malaria (GFATM). 2013. Grant Performance Report, BUR-708-G07-M. <http://portfolio.theglobalfund.org/en/Grant/Index/BUR-708-G07-M> last accessed April 2013.
- GFATM. 2010. Universal Access through securing ARV treatments, strengthening of PMTCT and strengthening HIV prevention for most at risk populations. Grant Performance Report, 10 February 2010.
- GFATM. Proposal July 2008 (Round 8). Scaling up malaria control interventions in Burkina Faso.
- GFATM. Proposal July 2007 (Round 7). Strengthening the fight against malaria in Burkina Faso.

- GFATM. Proposal July 2002 (Round 2). Reinforcement of malaria prevention measures in Burkina Faso.
- Grietens KP, Gies S, Coulibaly SO, Ky C, Somda J, Toomer E, Muela Ribera J, D'Alessandro U. Bottlenecks for high coverage of intermittent preventive treatment in pregnancy: the case of adolescent pregnancies in rural Burkina Faso. *PLoS One*. 2010 Aug 6; 5(8): e12013.
- Hewitt K, Steketee R, Wapsas V, Whitworth J and French N. 2006. Interactions between HIV and malaria in nonpregnant adults: evidence and implications. *AIDS*; 20:1993–2004.
- Hoffman IF, Jere CS, Taylor TE et al. 1999. The effect of Plasmodium falciparum malaria on HIV-1 RNA blood plasma concentration. *AIDS* 1999; 13: 487–494.
- Institut National de la Statistique et de la Démographie (INSD) [DHS-MICS] et ICF International. 2012. Enquête Démographique et de Santé et à Indicateurs Multiples du Burkina Faso 2010. Calverton, Maryland, USA: INSD et ICF International.
- IRIN. 2009. Burkina Faso: Illegal clinic crackdown. IRINnews.org. August 28, 2009.
- International Health Partnership. Country Health Systems Surveillance (CHeSS): a brief assessment in Burkina Faso. http://www.internationalhealthpartnership.net/fileadmin/uploads/ihp/Documents/Country_Page_s/Burkina_Faso/BurkinaFaso-CHeSS_for_IHP_2009_En%5B1%5D.pdf.
- Jhpiego. 2008. Scaling up Malaria in Pregnancy Programs: What it Takes! Accessed from website: <http://www.jhpiego.org/files/spJhp2008malaria.pdf>.
- Kouyaté B, Sie A, Yé M, De Allegri M, Müller O. 2007. The great failure of malaria control in Africa: A district perspective from Burkina Faso. *PLoS Med*; 4(6): e127.
- Lengeler C. 2004. Insecticide-treated bed nets and curtains for preventing malaria. *Cochrane Database of Systematic Reviews*, Issue 2.
- Maternal and Child Health Integrated Program (MCHIP), USAID, Burkina Faso. 2011. Annual report October 2010–September 2011.
- McCormick MC. 1985. The contribution of low birth weight to infant mortality and childhood morbidity. *N Engl J Med*; 312: 82–90.
- Ministère de la Santé (Ministry of Health [MOH]). 2012a. Annuaire statistique 2011 [Annual health statistical report]. Direction Générale de l'Information et des Statistique Sanitaires. Burkina Faso. <http://www.sante.gov.bf/index.php/publications-statistiques/file/280-annuaire-statistique-2011>
- MOH. 2012b. Tableau de Bord de la Santé 2011. <http://www.sante.gov.bf/index.php/publications-statistiques/file/306-tableau-de-bord-2011>
- MOH, Burkina Faso. 2011. Rapport de la revue du programme national de lutte contre le paludisme.
- MOH. 2011. Plan stratégique de lutte contre le paludisme 2011–2015.
- MOH. 2010a. Directives nationales pour la prise en charge du paludisme dans les formations sanitaires du Burkina Faso.
- MOH. 2010b. Guide de supervision des agents de santé sur la lutte contre le paludisme au Burkina Faso. (Malaria control supervision guide.)
- MOH. 2010c. Politique et Normes en Matière de Santé de la Reproduction. Mai 2010.
- MOH. 2009a. Comptes nationaux de la santé et sous comptes paludisme, tuberculose et VIH/Sida, année 2009. http://www.who.int/nha/country/bfa/en/_MOH. Manuel de formation pour la PEC du paludisme au niveau du district. PNL, August 2008.

- MOH, Burkina Faso. 2009b. Programme National De Lutte Contre Le Paludisme. 7eme Réunion du Comité National de Pilotage de lutte contre le paludisme. Ouagadougou 29 Sep 2009.
- MOH, Burkina Faso. 2009c. Plan d'action 2009 du Programme National de Lutte Contre le Paludisme (PNLP).
- MOH. 2007. Plan stratégique de lutte contre le paludisme 2006-2010. Version révisée. (Malaria Control Strategic Plan) March 2007.
- MOH. Réunion conjointe annuelle de revue et de la planification de lutte contre le paludisme en Afrique l'Ouest (Annual Joint Meeting for the Review and Planning of Malaria Control in West Africa), Feuille de route finalisée (Roadmap Finalized), Burkina Faso.
- Newman RD, Hailemariam A, Jimma D, Degifie A et al. 2003. Burden of malaria during pregnancy in areas of stable and unstable transmission in Ethiopia during a nonepidemic year. *J Infect Dis*; 187: 1765–1772.
- Original or Alternative Title: Comptes Nationaux de la Santé 2006: Geography Type: Country: Geography Name: Burkina Faso: Geography Code: BFA: Time Period Covered
www.healthmetricsandevaluation.org/ghdx/record/burkina.
- Peeters, Grietens K, Gies S, Coulibaly SO, Ky C, Somda J et al. 2010. Bottlenecks for High Coverage of Intermittent Preventive Treatment in Pregnancy: The Case of Adolescent Pregnancies in Rural Burkina Faso. *PLoS ONE*; 5(8): e12013. doi:10.1371/journal.pone.0012013.
- Pell C, Straus L, Andrew EVW, Menaca A, Pool R. 2011. Social and Cultural Factors Affecting Uptake of Interventions for Malaria in Pregnancy in Africa: A Systematic Review of the Qualitative Research. *PLoS ONE* 6(7): e22452.
- Pfeiffer K, Some F, Muller O, Sie A et al. 2008. Clinical diagnosis of malaria and the risk of chloroquine self-medication in rural health centres in Burkina Faso. *Tropical Medicine and International Health*; 13(3): 418–42.
- Ramroth H, Ndugwa RP, Müller O, Yé Y, Sié A, Kouyaté B, Becher H. 2009. Decreasing childhood mortality and increasing proportion of malaria deaths in rural Burkina Faso. *Global Health Action*. 2009 Apr 15; 2.
- Saleri N, Capone S, Pietra V et al. 2009. Outcome and Predictive Factors of Mortality in Hospitalized HIV-Patients in Burkina Faso. *Infection*; 37: 142–147.
- Sanga B. Distribution gratuite de moustiquaires: Une offensive nationale contre le paludisme. Article from website: lefaso.net.
- Sirima SB, Cotte A, Konate A et al. 2006. Malaria prevention during pregnancy: assessing the disease burden one year after implementing a program of intermittent preventive treatment (IPTp) in Kaoupela district, Burkina Faso. *Am. J. Trop. Med. Hyg.*, 75(2): 205–211.
- Steketee RW, Nahlen BL, Parise ME and Menendez C. 2001. The burden of malaria in pregnancy in malaria-endemic areas. *Am J Trop Med Hyg* 64: 28–35.
- Tiono AB, Ouedraogo A, Bougouma EC, Diarra A et al. 2009. Placental malaria and low birth weight in pregnant women living in a rural area of Burkina Faso following the use of three preventive treatment regimens. *Malaria Journal*; 8: 224.
- Tipke M, Louis VR, Yé M, De Allegri M, Beiersmann C, Sié A, Mueller O, Jahn A. 2009. Access to malaria treatment in young children of rural Burkina Faso. *Malar J*. 2009 Nov 24; 8: 266.
- Toe LP, Skovmand O, Dabire KR. 2009. Decreased motivation in the use of insecticide-treated nets in a malaria-endemic area in Burkina Faso. *Malaria Journal*; 8: 175.

- UNAIDS. 2011. HIV and Aids Estimates, Burkina Faso country page.
<http://www.unaids.org/en/regionscountries/countries/burkinafaso/>
- UNICEF. Burkina Faso Country Profile. Accessed 4/12/2011 from website:
<http://www.unicef.org/infobycountry/burkinafaso.html>.
- United Nations Development Program. 2011. National Human Development Reports for Burkina Faso. Accessed 2/6/2011 from website:
<http://hdrstats.undp.org/en/countries/profiles/BFA.html>.
- U.S. Agency for International Development (USAID) Burkina Faso. 2011. FY2011 Malaria Operational Plan.
- USAID. 2009. Malaria Program in Burkina Faso. Assessment and Work Planning for MCHIP and Deliver. October 5–16, 2009.
- World Health Organization (WHO). 2012. Updated WHO Policy Recommendation: 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 (last accessed 28 February 2013).
- WHO. 2010. Guidelines for the treatment of malaria, Second edition. Geneva.
- WHO. 2009. National Health Accounts: Burkina Faso. <http://www.who.int/nha/country/bfa/en/>
- WHO. 2008. Malaria in pregnancy: pregnant women and infants. At:
http://www.who.int/malaria/pregnant_womenandinfants.htm.
- WHO. 2006a. Pregnancy, Childbirth, Postpartum and Newborn Care: A guide for essential practice. Second edition. Geneva: WHO.
- WHO. 2006b. Country Health System Fact Sheet 2006 – Burkina Faso. Accessed on 4/15/2011 from website: <http://www.who.int/whosis/en/>.
- WHO. 2004. A Strategic Framework for Malaria Prevention and Control During Pregnancy in the African Region. Brazzaville: WHO Regional Office for Africa, 2004. AFR/MAL/04/01.
- Wuehler S and Ouedraogo AW. 2011. Situational analysis of infant and young child nutrition policies and programmatic activities in Burkina Faso. *Maternal and Child Nutrition*; 7(suppl.1): 35-62.
- Zida A, Bertone , Lorenzetti L. 2010. Health Systems 20/20. Using National Health Accounts to Inform Policy Change in Burkina Faso. USAID.
<http://www.healthsystems2020.org/content/resource/detail/2781/>

Annex 1: Identification des Membres du PNLP (NMCP Staff List)

N°	NOM ET PRÉNOMS	QUALIFICATION	SERVICE/UNITÉS	OBSERVATIONS
1	Dr. Combary Ali Patrice	Médecin de santé publique	Coordonnateur du PNLP	Etat
2	Dr. Traoré Mama	Médecin de santé publique	Responsable de l'unité de prise en charge et prévention médicamenteuse	Fonds Mondial
3	M. ZEBA Idrissa	Attaché de santé, pédiatrie	Unité Prise en Charge	Etat
4	Mme Brigitte Sawadogo	Attaché de santé, soins infirmiers et obstétricaux	Unité Prise en Charge	Etat
5	Dr. Sanon Harouna	Médecin Epidémiologiste	Responsable Unité Suivi Evaluation	Fonds Mondial
6	M. Kabore Moussa	Attaché de santé/épidémiologie	Unité Suivi/Evaluation	Etat
7	M. Sandwidi Jean Pascal	Attaché de santé/santé publique and soins infirmiers et obstétricaux	Unité Suivi/Evaluation	Etat
8	M. Doamba Mathias	Conseiller de santé, soins infirmiers et obstétricaux	Responsable de l'unité de la lutte antivectorielle	Etat
9	Mme. Sawadogo Monique	Attaché de santé/soins infirmiers et obstétricaux	Unité de la lutte antivectorielle	Etat
10	M. Kabore Raymond	Technicien du Génie sanitaire	Unité de la lutte antivectorielle	Etat
11	Mme. Konseibo Béatrice	Attaché de santé/soins infirmiers et obstétricaux	Responsable de l'unité de plaidoyer, information, éducation, communication et mobilisation sociale	Etat
12	Mme. Lalle Aissétou	Attaché de santé/soins infirmiers et obstétricaux	Unité de plaidoyer, information, éducation, communication et mobilisation sociale	Etat
13	M. Kabore Noel	Communicateur	Unité de plaidoyer, information, éducation, communication et mobilisation sociale	Fonds Mondial
14	Dr. Moussa Ouedraogo	Pharmacien	Responsable de l'unité l'approvisionnement et logistique	Fonds Mondial
15	M. Sia Moïse	Préparateurs d'Etat en Pharmacie	Unité approvisionnement et logistique	Etat
16	Gnankine Ibrahim	Administrateur des Hôpitaux et services de santé	Responsable de l'unité l'administration et finances	Etat

N°	NOM ET PRÉNOMS	QUALIFICATION	SERVICE/UNITÉS	OBSERVATIONS
17	Gouba T. Serge	Comptable	Unité administration et finances	Fonds Mondial
18	Sawadogo Mady	Comptable	Unité administration et finances	Fonds Mondial
19	M. Zongo Vincent	Chauffeur	Personnel d'appui	Etat
20	M. Yra Adama	Chauffeur	Personnel d'appui	Etat
21	M. Kagambega Ousséni	Chauffeur	Personnel d'appui	Etat
22	Sanou Adama	Chauffeur	Personnel d'appui	Fonds Mondial
23	Liliou Sampana	Chauffeur	Personnel d'appui	Fonds Mondial