



PRESIDENT'S MALARIA INITIATIVE



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

April 2014

Mary Drake
Jim Ricca

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

This report was made possible by the generous support of the American people through the United States Agency for International Development (USAID), under the terms of the Leader with Associates Cooperative Agreement GHS-A-00-08-00002-00 and Cooperative Agreement AID-OAA-A-14-00028. The contents are the responsibility of MCHIP and The Maternal and Child Survival Program (MCSP), and do not necessarily reflect the views of USAID or the United States Government.

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

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

Table of Contents

Abbreviations	ii
Acknowledgments	iii
Introduction	1
Background	2
Malaria Situation in Mozambique.....	2
World Health Organization and Mozambique Malaria Monitoring and Evaluation Recommendations	3
Methods	4
Desk Review.....	4
Key Informant Interviews	4
Findings	4
Health Management Information System Structure and Function	4
Malaria in Pregnancy Indicators in National Plans, Health Management Information System Registers, and Reports.....	6
Data Flow and Reporting Process	7
Malaria in Pregnancy Data Quality	8
Use of Malaria in Pregnancy Data	8
Stock Management	9
Discussion	9
Annex 1. List of Stakeholders Interviewed	11
Annex 2. Interview Questions	12

Abbreviations

ANC	Antenatal Care
APE	<i>Agente Polivalente Elementar</i>
BS	Blood Serum
CDC	Centers for Disease Control and Prevention
DHS	Demographic and Health Survey
DQI	Data Quality Improvement
Hb	Hemoglobin
HIS	Health Information System
HMIS	Health Management Information System
IFA	Iron Folate
IPT/IPTp	Intermittent Preventive Treatment in Pregnancy
ITN	Insecticide-Treated Net
LLIN	Long-Lasting Insecticide-Treated Net
LSDI	Lubombo Spatial Development Initiative
M&E	Monitoring and Evaluation
MCH	Maternal and Child Health Department
MCHIP	Maternal and Child Health Integrated Program
MIP	Malaria in Pregnancy
MIS	Malaria Indicator Survey
MNCH	Maternal, Neonatal, and Child Health
MOASIS	Mozambique Open Architectures, Standards and Information Systems
MOH	Ministry of Health
NGO	Nongovernmental Organization
NMCP	National Malaria Control Program
PHD	Public Health Directorate
PMI	President's Malaria Initiative
RBM	Roll Back Malaria
RDT	Rapid Diagnostic Test
RH	Reproductive Health
SP	Sulfadoxine-Pyrimethamine
SWAp	Sector-Wide Approach
TWG	Technical Working Group
UNICEF	United Nations Children's Fund
USAID	United States Agency for International Development
WHO	World Health Organization

Acknowledgments

The Maternal and Child Health Integrated Program (MCHIP) is grateful for the support provided by the MCHIP/Mozambique office in facilitating this work. MCHIP would also like to thank the President's Malaria Initiative (PMI) and the many reviewers who provided helpful comments at several stages of the review.

Introduction

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

Obtaining reliable, valid, and timely malaria service data, especially data related to the control of malaria in pregnancy (MIP), is challenging. While population-based MIP indicators are very useful, the timing of population-based surveys, generally every 2–5 years, is infrequent for program monitoring. National health management information system (HMIS) data are more frequently collected, complement survey data, and have the potential to be more useful for ongoing service improvement and decision-making. Yet the quality of HMIS data in low-income settings is poor; often data are missing, report formats are outdated, and reporting is late. Further, it is not widely known what data are being recorded at the facility level, what data are reported up through the health system, and whether those data are being used at the facility.

MCHIP, with support from PMI, decided to conduct a review of national HMISs in a sample of six PMI focus countries to improve its understanding of how ministries of health (MOHs)—both national malaria control programs (NMCPs) and reproductive health (RH) units—are monitoring and reporting on their MIP-related program results and how the data are being used. This review will provide specific recommendations for improving routine data collection and use for MIP-related activities.

This review fits within a larger review of routine maternal and newborn data collection systems being conducted by MCHIP in the same six countries and additional non-PMI/non-malaria-endemic countries. The PMI countries selected for this review are Kenya, Malawi, Mozambique, Mali, Tanzania, and Uganda. Each of these countries is one of the 19 focus countries benefiting from PMI, implemented by the United States Agency for International Development (USAID) in partnership with the Centers for Disease Control and Prevention (CDC). The review focuses on the public sector and examines how HMIS and supplemental routine data collection and reporting strategies are used at different levels of the health system to capture MIP indicators. The review describes MIP information and data quality gaps and best practices.

This report presents findings from the review, recommendations on priority indicators that should be monitored at the facility level and data collection formats, ways to interpret and use data to improve services, and ways to report data up through the health system. While the authors do aim to make recommendations on how better to use and report data throughout the system, we are not capturing supply-side data. We recognize this is not a complete picture, but still believe the findings do yield enough information to make recommendations for improvements. Information from this report, along with the other five country reviews, will be used to propose revisions to the World Health Organization (WHO)/RBM manual, *Malaria in Pregnancy: Guidelines for Measuring Key Monitoring and Evaluation Indicators*.¹

¹ World Health Organization. 2007. *Malaria in Pregnancy: Guidelines for Measuring Key Monitoring and Evaluation Indicators*. Geneva, Switzerland: World Health Organization. http://whqlibdoc.who.int/publications/2007/9789241595636_eng.pdf.

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

Background

MALARIA SITUATION IN MOZAMBIQUE

As described in the PMI Mozambique 2013 *Malaria Operational Plan*, “Malaria is endemic throughout Mozambique and the entire estimated population of 23 million people is at risk. Most of the country has year-round malaria transmission with a seasonal peak during the rainy season, from December to April. In addition, Mozambique is prone to natural disasters such as drought, cyclones, and floods; these may have contributed to increases in malaria transmission in recent years, particularly in low-lying coastal areas and along major rivers.

“Malaria is considered the most important public health problem in Mozambique and accounts for 29% of all deaths, followed closely by AIDS at 27%. Among children less than five years old, malaria accounts for 42% of the deaths, followed by AIDS at 13%. *Plasmodium falciparum* accounts for 90% of all malaria infections, with *P. malariae* and *P. ovale* responsible for about 9% and 1%, respectively.”²

The 2011 Demographic and Health Survey (DHS) preliminary data showed minor improvements in all indicators compared with the 2007 Malaria Indicator Survey (MIS);³ however, many indicators have shown relatively little progress (see Table 1). For example, the proportion of women who received two or more doses of intermittent preventive treatment in pregnancy (IPTp or IPT) during their last pregnancy during the last two years increased from 16% to only 19%. The proportion of pregnant women who slept under an insecticide-treated net (ITN) the previous night increased from 7.3% to 34%.⁴

Table 1. Key results from nationwide household surveys

MOZAMBIQUE MALARIA INDICATORS	PMI BASELINE	DHS 2011 PRELIMINARY
All-cause under-five mortality rate	153/1,000 (DHS 2003) ^a	97/1,000
Proportion of households with at least one ITN	16% (MIS 2007)	51%
Proportion of children under five years old who slept under an ITN the previous night	7% (MIS 2007)	35%
Proportion of pregnant women who slept under an ITN the previous night	7.3% (MIS 2007)	34%
Proportion of women who received two or more doses of IPTp during their last pregnancy in the last two years	16% (MIS 2007)	19%

a. Instituto Nacional de Estatística, Ministério da Saúde, and MEASURE DHS+/ORC Macro. 2005. *Moçambique: Inquérito Demográfico e de Saúde 2003*. <http://dhsprogram.com/pubs/pdf/FR161/FR161.pdf>.

² President’s Malaria Initiative. *Mozambique: Malaria Operational Plan FY 2013*. http://www.pmi.gov/docs/default-source/default-document-library/malaria-operational-plans/fy13/mozambique_mop_fy13.pdf?sfvrsn=8.

³ Mabunda, Samuel, Guideon Mathe, Elizabeth Streat, Susana Nery, and Albert Kilian. *National Malaria Indicator Survey: Mozambique (MIS-2007)*. Republic of Mozambique Ministry of Health, National Directorate of Public Health. <http://malariasurveys.org/documents/MIS%20Malaria%20Survey%202007.pdf>.

⁴ President’s Malaria Initiative. *Mozambique: Malaria Operational Plan FY 2013*. http://www.pmi.gov/docs/default-source/default-document-library/malaria-operational-plans/fy13/mozambique_mop_fy13.pdf?sfvrsn=8.

WORLD HEALTH ORGANIZATION AND MOZAMBIQUE MALARIA MONITORING AND EVALUATION RECOMMENDATIONS

The WHO Evidence Review Group meeting, held in July 2012, resulted in new recommendations for frequency and timing of IPTp-SP (that is, IPTp using sulfadoxine-pyrimethamine) dosing, based on review of the latest evidence of the efficacy of IPTp-SP. The recommendations were presented to the WHO Malaria Policy Advisory Committee in September 2012 and adopted as the *Updated WHO Policy Recommendation* on IPTp-SP in October 2012.⁵ To help facilitate MIP program implementation, it is important to have harmonization of country policies, guidelines, training, and supervision materials between RH and malaria control. In light of the *Updated WHO Policy Recommendation* and recognizing that many countries will need to revise their national-level documents to disseminate the new guidance, MCHIP conducted a systematic review of national-level MIP policies and guidance documents in Kenya, Mali, Mozambique, Tanzania, and Uganda.⁶ The purpose of the policy review was to increase our understanding of each country's MIP guidance for health workers and to find any inconsistencies that may exist between WHO and country guidance as well as between RH programs and malaria programs at the country level. The report of the national-level MIP policies and guidance review recommends specific actions at the country level for removing inconsistencies and complements the HMIS review presented in this report.

Updated WHO Policy Recommendation (October 2012)

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

Additionally, WHO recommends key indicators for MIP monitoring at output, outcome, and impact levels (see Table 2).

Table 2. WHO-recommended indicators for monitoring MIP

OUTPUT INDICATORS	<ul style="list-style-type: none"> ▪ Percentage of ANC staff (pre-service, in-service, or at supervisory visits) trained in control of MIP in the past 12 months (including IPTp, counseling on long-lasting insecticide-treated net [LLIN] use, and case management for pregnant women) ▪ Percentage of health facilities reporting stock-outs of the recommended drug for IPTp (currently SP) in the past month
OUTCOME INDICATORS	<ul style="list-style-type: none"> ▪ Percentage of pregnant women receiving IPTp under direct observation (first dose, second dose, third dose, according to national guidelines) ▪ Percentage of pregnant women who report having slept under an LLIN the previous night
IMPACT INDICATORS	<ul style="list-style-type: none"> ▪ Percentage of low-birthweight singleton live births (< 2,500g) by parity ▪ Percentage of screened pregnant women with severe anemia (hemoglobin ≤ 7 g/dl) in third trimester by gravidity

Adapted from Blouse, Ann. 2008. *Prevention and Control of Malaria in Pregnancy in the African Region: A Program Implementation Guide*. Baltimore, MD: Jhpiego. http://www.mchip.net/sites/default/files/Malaria_ImpGuide_web_0.pdf.

⁵ World Health Organization and Global Malaria Programme. 2012. *Updated WHO Policy Recommendation (October 2012): Intermittent Preventive Treatment of Malaria in Pregnancy Using Sulfadoxine-Pyrimethamine (IPTp-SP)*. http://www.who.int/malaria/iptp_sp_updated_policy_recommendation_en_102012.pdf.

⁶ Gomez, Patricia, Aimee Dickerson, and Elaine Roman. 2012. *Review of National-Level Malaria in Pregnancy Documents in Five PMI Focus Countries*. Baltimore, MD: Jhpiego Corporation. <http://www.mchip.net/sites/default/files/mchipfiles/MIP%20in%20Five%20African%20Countries.pdf>.

Methods

DESK REVIEW

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

- National Malaria Control Program Monitoring & Evaluation Plan, 2009–2013
- HMIS tools
- NMCP 2009 Report of Malaria Surveillance in Sentinel Sites
- NMCP M&E Draft 2010–2014
- Strategic Plan for the Health Information System 2009–2014

KEY INFORMANT INTERVIEWS

The findings of the desk review were used to tailor interviews that were conducted in each country. While in most countries, in-country interviews were conducted with key stakeholders at national, district, and facility level, in Mozambique interviews were limited to national level and included NMCP and partner staff. The MOH did not allow visits beyond this as MCHIP had recently conducted a similar exercise to review data collection, reporting, and use practices. The previous exercise, however, had a broader scope of maternal-newborn data; that effort did not produce specific MIP-related findings to inform this work. In the interviews that were conducted, efforts were made to glean the perspective from three key areas: malaria, RH, and HMIS. A list of interviewees is in Annex 1 and questions can be found in Annex 2.

Findings

HEALTH MANAGEMENT INFORMATION SYSTEM STRUCTURE AND FUNCTION

The Health Information System (HIS) in Mozambique dates back to 1982 and covers the primary and the secondary levels of health care. The HIS was revised in 1989 due to constraints related to lack of defined objectives, complexity of the forms (too many, lack of data definition), and data duplication. The revision of HIS led to a reduction of the number of forms used for data collection, from 60 to 12, and some basic indicators were included in the forms for use at district and health facility levels. The basic elements of Mozambique's current HIS were established in 1992. After several years of development in consultation with multiple development partners, in January 2012 the MOH rolled out a set of seven integrated maternal, neonatal, and child health (MNCH) registers, including an ANC register that integrates all of the services received in ANC.

Within the MOH, the HMIS revision was led by the national Public Health Directorate (PHD), which includes three departments: Maternal and Child Health (MCH), Infectious Disease (including the NMCP), and the Community Health Department (in charge of Mozambique's community health workers, known as *agentes polivalentes elementares* or APEs). When developing the registers, PHD consulted with the maternal and child health Technical Working

Group (TWG) of the Health Sector-Wide Approach (SWAp) group, with membership that includes

- representatives of USAID, WHO, the United Nations Population Fund, and the United Nations Children’s Fund (UNICEF);
- several nongovernmental organizations (NGOs) with funding from USAID / CDC / President’s Emergency Plan for AIDS Relief (Pathfinder, MCHIP, Elizabeth Glaser Pediatric AIDS Foundation, FHI 360, Abt, Save the Children, Health Action International); and
- the International Centre for Reproductive Health (a Belgian NGO).

The new registers were rolled out without coordinated training of personnel in the registers’ use or revisions of the electronic HMIS (the *Modulo Basico* or Basic Module) to accommodate the new data being collected. Throughout most of 2012, this caused severe problems, including a literally complete lack of data at the national level for months. Because of the breakdown in the flow of information, in the latter half of 2012, USAID pushed development partners to coordinate assistance for urgent improvement, including

- funding supplementary printing and distribution of the new registers because some facilities had not received sufficient quantities initially,
- working with the Department of Planning and Cooperation and Mozambique Open Architectures, Standards and Information Systems (MOASIS) to make the *Modulo Basico* match the new registers,
- rapidly assessing the use of the registers, and
- training personnel at the district and health facility levels (previous trainings had not gone lower than the provincial level).

A number of partners within the donor coordination group (the SWAp maternal and child health TWG) conducted a rapid assessment on the deficiencies in the registers’ use, and conducted trainings focused on the identified difficulties. The partners also advocated that the electronic information system be revamped to match the new registers. The development partner giving technical assistance on the *Modulo Basico*, with CDC funding, is a South African NGO, with a Mozambican affiliate called MOASIS. It should be noted that within the MOH, inpatient care is managed by a completely different directorate (the National Directorate for Medical Assistance) that does not include either MCH or NMCP. Revision of inpatient registers should include MCH and NMCP. There is not much coordination between the National Directorate for Medical Assistance and PHD.

Other Health Information System / Monitoring and Evaluation Efforts

A subnational activity, the Lubombo Spatial Development Initiative (LSDI) was a trilateral partnership between the governments of South Africa, Swaziland, and Mozambique. The LSDI supported a computerized Malaria Information System that allowed the input, management, and output of malaria case data used for management and research. The LSDI was primarily implemented in Gaza and Maputo provinces, but is now finished, and there are no reporting forms from it in use. Another effort undertaken for M&E of malaria included a national sentinel site surveillance that was set up for three to four years. This system, however, was considered to be very expensive. The system was simplified but it still did not work well, and currently there is no sentinel site surveillance system.

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

Summary of M&E Plan 2010–2014

The National Malaria Prevention and Control Monitoring and Evaluation Plan 2010–2014 includes two core outcome indicators related to RBM's technical strategy for prevention and control of MIP. These indicators include measurement of population coverage:

- Proportion of pregnant women who slept under an LLIN the previous night
- Proportion of women who received at least two doses of IPTp in ANC visits during their last pregnancy

The NMCP M&E guidance indicates that the diagnosis of malaria noted in the register should be coded to indicate if it was confirmed positive through a rapid diagnostic test (RDT; RDT+) or microscopy (blood serum [BS]+, BS++, BS+++). the diagnosis is not disaggregated by sex or pregnancy status, however.

A 2010 norm, the Descriptive Memo on the Definition/Revision of Instruments and Information Flows for Maternal Child Health Services, describes three MIP indicators and their level of use (see Table 3).

Table 3. Three MIP indicators and their level of use

INDICATOR	LEVEL OF USE
%ANC clients receiving IPT2 [second dose of intermittent preventive treatment in pregnancy]	District and provincial
%ANC clients receiving SP3	District, provincial, and national
%ANC clients receiving ITN	District and provincial

Regarding donor reporting, the M&E draft 2010–2014 notes three routine reports that must be produced: (1) Annual Malaria Prevention and Control Reports; (2) quarterly reports required by the Global Fund to Fight AIDS, Tuberculosis and Malaria; and (3) RBM/WHO Regional and Global Reports.

Summary of Health Management Information System Content

HMIS tools were reviewed to see if key data elements were captured (see Table 4 for a summary). Forms used by APEs were reviewed and did not include MIP data. The indicators for IPTp2 and ITN distribution are captured. The indicators for malaria diagnosis and treatment are not in ANC registers, and once treated or referred, there is no way to disaggregate treated clients by pregnancy status in order to capture this information.

Table 4. Summary of ANC and MIP data collected

DOES THE FORM HAVE A PLACE TO RECORD . . . ?	WOMAN'S INDIVIDUAL ANC CARD	ANC REGISTER	FACILITY MONTHLY REPORT	COMMENTS
Are instructions for completing the form included?	No	Yes	No	Inside the front cover of the ANC register are instructions for filling out each column of the patient register and calculating indicators for the monthly report.
Gestation of pregnancy at visit (in weeks)	Yes	Yes	No	
ANC visit	All	All	<ul style="list-style-type: none"> ▪ Total first ANC visits ▪ Total follow-up visits 	
Iron/folate (IFA) given	# IFA	IFA together	IFA together	
IPTp dose given	Yes	IPT1, 2, 3	IPT1, 2, 3	
ITN distribution	Yes	Yes	Yes	
Asked if slept under net the previous night	Yes	No	No	
HIV testing done—Pregnant woman	Yes	Yes	Yes	
HIV test result—Pregnant woman	Yes	Yes	Yes	
Prevention of mother-to-child transmission—on co-trimoxazole	Yes	Yes	Yes	
Hemoglobin (Hb), pneumococcal vaccine recorded	Level recorded	Yes (Hb < 8)	Yes (Hb < 8)	
Asked if currently has fever/malaria	No	No	No	
Temperature recorded	No	No	No	
Malaria testing done at ANC	No	No	No	
Malaria test result listed	No	No	No	
Malaria treatment given / referral at ANC	No	No	No	There is only a general referral column to record referral for any reason.

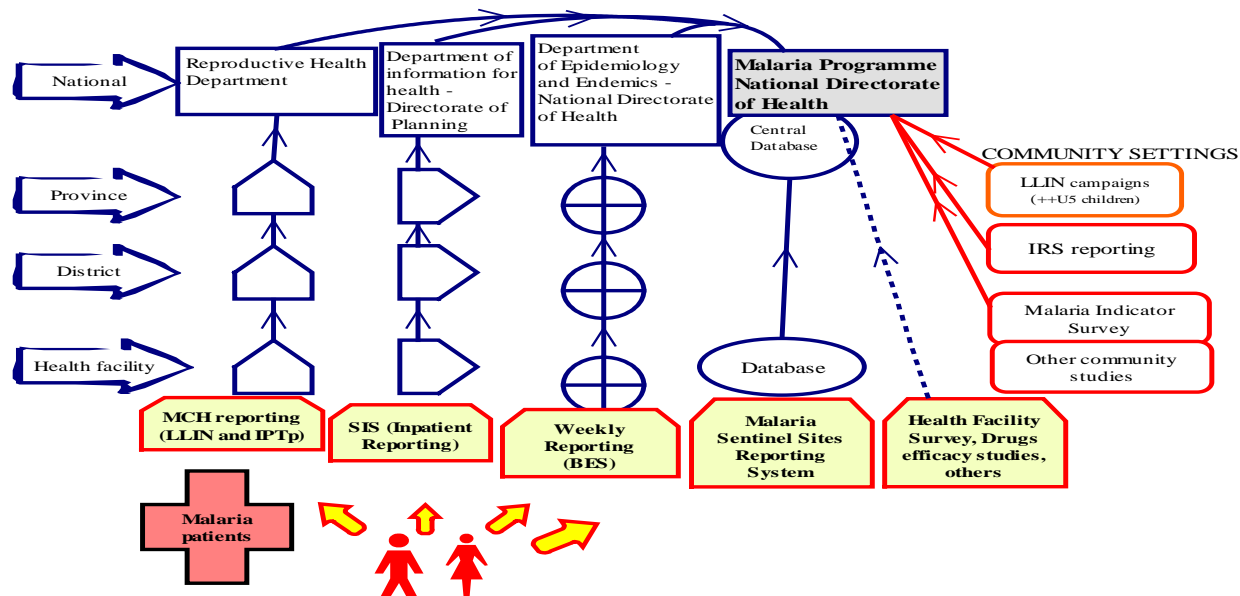
In 2013, at the same time this PMI-funded review of HMIS for MIP indicators was being conducted, the Mozambique MOH made additional revisions to the national HMIS. The MOH improved monitoring of maternal and neonatal health interventions, including MIP. As a result, the integrated ANC register was updated to include IPTp4, malaria testing, test result, and treatment and referral for MIP.

DATA FLOW AND REPORTING PROCESS

Data are collected on a daily basis in health registers at the health facility and community (APE) level. Monthly summary reports are generated at the local level and passed to the district “Health Information Nucleus.” From there, the information is aggregated by hand and fed to the

provincial level where it is aggregated again and put into the *Modulo Basico*. Finally, this information is sent to the national level, where it is processed and reports are generated. The data flow for malaria programming is embedded within this larger system for routine information. The routine outpatient system is shown on the left side of the Figure (the streams for maternal and child health reporting and inpatient reporting).

Figure. Malaria data flow in Mozambique



Adapted from Chilundo, Baltazar, Johanne Sundby, and Margunn Aanestad. 2004. "Analysing the Quality of Routine Malaria Data in Mozambique." *Malaria Journal* 3: 3. doi: 10.1186/1475-2875-3-3.

Abbreviations: BES, *Boletim Epidemiológico Semanal* (Weekly Epidemiological Bulletin); IRS, indoor residual spraying; SIS, *Sistema de Informação em Saúde* (Health Information System).

MALARIA IN PREGNANCY DATA QUALITY

There have been chronic problems with late reporting of MIP and other data. To help improve timeliness, a new schedule was instituted in 2012 in which the current month's data are compiled and reported on the 20th of the month, so that the information will have arrived to its final destination at national level by the 30th of each month. While there have been reported improvements in timeliness and completeness of data, there is still room for improvement.

Of note, there have been several analyses done to assess the accuracy of data collection and reporting through the HIS. One of these looked at five core routine indicators for maternal health care services (ANC, skilled birth attendant, etc.); another looked at the accuracy of HIV treatment. Both of the described analyses concluded that there was a relatively high level of accuracy in reporting for the indicators examined. It should be noted that these analyses were both done before the January 2012 rollout of the new set of integrated MNCH registers.

USE OF MALARIA IN PREGNANCY DATA

According to the NMCP M&E guidance, MIP data that are collected include number of first ANC visits; IPTp doses 1, 2, and 3; and total number of nets distributed in ANC. These data are prepared in a monthly district report to NMCP. Analysis is done to calculate the proportion of ANC clients that receive IPTp2 and that receive an ITN, using number of first ANC visits as a denominator.

NMCP is responsible for providing malaria technical guidance and programming, whereas MCH is responsible for the service delivery platform for MIP interventions. The coordination required for this joint oversight can cause bottlenecks in data use. Currently there is little to no coordination between the MCH department and NMCP for data use; such coordination would be a starting point for improving data collection and reporting.

STOCK MANAGEMENT

Regarding monitoring of stock, the NMCP M&E Plan 2010–2014 includes an indicator: “Proportion of health units with no reported stock outs of nationally recommended anti malaria drugs lasting more than one week at any time during the last 3 months.” During this review, the logistics management information system forms could not be located for review and verification of data collection and reporting on this indicator.

Discussion

STRENGTHS AND OPPORTUNITIES

Mozambique has made progress toward integrated reporting. The integrated ANC report includes several key interventions to help preserve and improve the health of pregnant women and newborns. During this review, the MOH integrated IPT3, IPT4, and case management data elements (malaria testing, test result, and treatment and referral) into the HMIS.

WEAKNESSES

A key challenge in Mozambique is lack of coordination between the MCH department and NMCP, which could lead to MIP not being correctly addressed in either group’s key activities.. Because of MCHIP Mozambique’s work on malaria and maternal and child health, it is aware of a gap in coordination between NMCP and the MCH department. For example, MCHIP was requested to support the participation of two staff in an RBM meeting—someone from the NMCP and someone from the RH/MCH unit. It was recommended that the heads of both groups attend, but the MOH decided to send only the NMCP person. The NMCP has a new director, which may also affect program implementation and M&E efforts. WHO is focused generally on maternity care in Mozambique; there may be room to galvanize WHO as a key actor in MIP.

Another important point is that while provinces receive support from various partners, districts lack capacity for data analysis. Additionally, health facility staff generally struggle with data collection, let alone data use.

As previously noted, within the MOH, management of inpatient care is done by the National Directorate for Medical Assistance, which does not include either MCH or NMCP. Revision of inpatient registers to further improve monitoring of MIP case management should include MCH and NMCP.

RECOMMENDATIONS

Given the difficulties with coordination to improve monitoring of MIP data, it is important that a mechanism of coordination between NMCP and the MCH department is established. This mechanism can be used to ensure MIP service provision is supported during HMIS updates, trainings, and data quality assessments and subsequent improvement efforts. Support is necessary for a national technical working group that brings together NMCP and MCH as well as key stakeholders and that is mandated to focus on coordination of MIP implementation. Considering the focus on involving the MCH department,

early in the development of this working group it will be important to present and discuss the relevance of MIP on maternal, newborn, and child morbidity and mortality. Developing the working group probably will require an implementing partner or partners to help establish regular meeting schedules, support coordination, and provide technical support for planning and implementation.

With the recent successful integration of IPT3 and 4 and case management data into ANC, M&E efforts must be supported to ensure quality of these data and their use. Key steps to moving this forward include the following:

- Developing the capacity of M&E advisors, managers, and frontline health workers in data collection, data quality improvement (DQI), management, and analysis. Training should be integrated into routine efforts and followed up through supportive supervision. Another way to reinforce data collection is through a national memo from the Permanent Health Secretary to health centers, highlighting the change in data and the need for all health centers to include the new indicators in their data collection.
- Investing in DQI for MIP indicators including IPTp1–4, LLIN distribution in ANC, and case management. Investment includes assigning responsibility and funds to lead DQI efforts, which may include (1) developing and implementing a module to assess MIP data quality and (2) supporting the MOH to develop, implement, and monitor action plans for DQI. Data use often drives identification of data quality issues and so should be part of the DQI process. To that end, data review meetings should be organized at all levels: monthly at facility level and quarterly at district level and above.
- Exploring use of the national training databases to track MIP training received. Mozambique has two national databases, one for tracking in-service training and one for pre-service training. The data in these could be extracted in order to analyze the percentage of ANC providers trained in MIP.

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

Annex 1. List of Stakeholders Interviewed

NAME	ORGANIZATION OR ROLE
Natercia Fernandes	MCHIP Mozambique Malaria Advisor
Dr. Abdul Moussa	Director, NMCP
Abu Saifodine	USAID/PMI
Tiago	FHI 360
Matias dos Anjos	MCHIP Mozambique M&E Advisor

Annex 2. Interview Questions

This is a situation analysis to determine the following key pieces of information for routine monitoring of MIP in the public health system:

- What are the routinely collected indicators?
- How does the information flow from point of collection through various levels of the health system to the national level?
- What is the quality of the data and are there any difficulties with collecting and reporting them?
- Are the data used for decision-making? If so, how?

SPECIFIC QUESTIONS TO BE ANSWERED BY THE MALARIA IN PREGNANCY SITUATION ANALYSIS

- What forms, tools, registers, etc. are used?
- What is actually collected and reported (indicators)?
- Are all MIP indicators captured through ANC?
- Is MIP HIS integrated or parallel?
- Is ANC HIS integrated or parallel?
- How complete and timely is reporting?
- Who is responsible for MIP M&E?
- How are indicators summarized, analyzed?
- How are results used, if at all?

