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

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

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

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

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Abbreviations

ACT	Artemisinin-Based Combination Therapy
AL	Artemether-Lumefantrine
ANC	Antenatal Care
CBD	Community-Based Distributor
CDC	Centers for Disease Control and Prevention
CMED	Central Monitoring and Evaluation Division
DHIS2	District Health Information System II
DHO	District Health Office
EGPAF	Elizabeth Glaser Pediatric AIDS Foundation
FANC	Focused Antenatal Care
HF	Health Facility
HMIS	Health Management Information System
HP	Health Passport
HSA	Health Surveillance Assistants
HSSP	Health Sector Strategic Plan
IDSR	Integrated Disease Surveillance and Response
IPTp	Intermittent Preventive Treatment of Malaria in Pregnancy
IRS	Indoor Residual Spray
ITN	Insecticide-Treated Net
LLIN	Long-Lasting Insecticide-Treated Net
LMIS	Logistics Management Information System
M&E	Monitoring and Evaluation
MCHIP	Maternal and Child Health Integrated Program
MDHS	Malawi Demographic and Health Survey
MIP	Malaria in Pregnancy
MIS	Malaria Indicator Survey
MoH	Ministry of Health
MOP	Malaria Operational Plan
MSP	Malaria Strategic Plan
NMCP	National Malaria Control Program
OPD	Outpatient Department
PMI	President's Malaria Initiative
RBM	Roll Back Malaria
RDT	Rapid Diagnostic Test
RHD	Reproductive Health Department
SP	Sulfadoxine-Pyrimethamine
SSDI	Support for Service Delivery Integration
UNICEF	United Nations Children's Fund
WHO	World Health Organization

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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 the reduction in the global burden of malaria morbidity and mortality. MCHIP does this by helping to improve the quality of malaria programs, strengthening health systems, and helping countries achieve sustained results. A critical aspect of health systems strengthening is ensuring that appropriate high quality data on malaria service delivery is available to policymakers and program managers.

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

MCHIP conducted a review of national HMIS in selected PMI focus countries to improve understanding of how ministries of health—both National Malaria Control Programs (NMCP) and Reproductive Health Units—are monitoring and reporting their MIP-related program results, and how the data are being used. This activity fits within a larger review of routine maternal and newborn health data collection systems by MCHIP in the same six countries plus other non-PMI/ non-malaria endemic countries.

PMI countries selected for this review include Kenya, Malawi, Mozambique, Mali, Tanzania, and Uganda. Each of these countries is among the19 focus countries benefiting from PMI, which is implemented by the U.S. Agency for International Development (USAID) in partnership with the U.S. Centers for Disease Control and Prevention (CDC). The review focuses on the public sector and examines how HMIS and supplemental routine data collection and reporting strategies are used at different levels of the health system to capture MIP indicators. The review describes MIP information, data quality gaps, and best practices.

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

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

Background

MALARIA SITUATION IN MALAWI

Malaria is the leading cause of morbidity and mortality in children under five years and among pregnant women in Malawi[1]. It is endemic throughout the country (Malaria Indicator Survey (MIS), 2012:2). According to the 2010 HMIS report, 48% of cases seen at the Outpatient Department (OPD) were malaria (HMIS, 2010:15). NMCP estimates that more than 6 million cases of malaria occur annually in Malawi (NMCP, cited in Malawi Demographic and Health Survey (MDHS), 2010).

The NMCP, which is responsible for coordinating the fight against malaria in Malawi, implements its activities within the Malawi Health Sector Strategic Plan (HSSP). It is also responsible for setting policy and providing guidance on malaria prevention and case management. The NMCP's 2011–2015 Malaria Strategic Plan (MSP) aims at ensuring that the Ministry of Health (MoH) is able to:

a. Achieve universal coverage of all interventions by 2015 to achieve 80% utilization rate of the interventions;
b. Strengthen advocacy, communication, and social mobilization capacities for malaria control by 2015 to improve use and adherence;
c. Strengthen surveillance, monitoring, and evaluation systems, including operational research, for tracking progress in the implementation of malaria control activities by 2015; and
d. Strengthen capacity in program management to achieve malaria program objectives at all levels of health service delivery.

The overall strategy is to move from targeting malaria control interventions to provision of universal access of proven interventions under which all Malawians at risk of malaria should have equitable access to malaria prevention, care, and treatment. Six primary interventions are envisaged, including:

- Integrated vector management
- Case management
- MIP
- Social mobilization and advocacy
- Surveillance, monitoring, evaluation, and operations research
- Program management

Progress in the fight against malaria has been steady. The Malawi 2010 Millennium Development Goals report indicates a decline in the contribution of malaria deaths (from 5% in 2006 to 3% in 2009) to the overall death rate, indicating an increase in access to treatment (use of artemether-lumefantrine [AL]) and preventive measures such as use of long-lasting insecticide-treated nets (LLINs). MoH's Integrated Disease Surveillance and Response[2] (IDSR) data shows that malaria case fatality rates have declined from 5.2% in 2005 to 3.4% in 2009 (MSP, 2011–2015).

[1] HMIS 2013, Malawi Service Provision Assessment (SPA) 2013-2014. Additional source is the Malaria Indicator Survey (MIS 2014)

[2] IDSR data are collected from all health facilities (HFs) in Malawi using a monthly report. It is collected by the MoH's epidemiology unit for diseases surveillance and response.

Notwithstanding the above, malaria deaths remain a significant contributor to the high maternal mortality rates (675/100,000 live births).
Since 2007, PMI has supported malaria control in Malawi. In the 2013 PMI Malawi Malaria Operational Plan (MOP), PMI supported the routine distribution of LLINs,[3] evidence-based insecticide resistance management strategy, access to high-quality case management, and consistent availability of commodities by maintaining support to the parallel supply chain while providing capacity-building support to the Central Medical Stores and strengthening the logistics management information system (LMIS) at the district level.

In the area of MIP, the PMI strategy includes intermittent preventive treatment of malaria in pregnancy (IPTp), LLINs for pregnant women, and case management of MIP. Over the years, PMI has worked to achieve high rates of IPTp coverage nationally by strengthening focused antenatal care (FANC) at the district HF level and by providing job aids and other relevant tools. PMI also has funded information, education, and communication efforts, encouraging early and repeated antenatal care (ANC) attendance, which increases the opportunity for successful delivery of the second IPTp dose.

In the current funding cycle (2013/14), PMI continues to support plans to increase uptake of IPTp by procuring sulfadoxine-pyrimethamine (SP), emphasizing supportive supervision of FANC services, and encouraging earlier attendance to ANC, especially among primigravidae, with a goal of ensuring that at least 85% of pregnant women receive at least two doses of IPTp (MOP FY13).

These activities are anchored in a strong monitoring and evaluation framework that includes both population based surveys, operations research, and review of the HMIS data and other relevant activities (MOP FY13, 23). Although this is the case, challenges—including unreliable data from the HMIS and the LMIS that result in difficulties with quantification and monitoring—remain a risk factor to malaria programming (MOP FY13). As a result of this, it is in PMI's interest to strengthen monitoring and evaluation to better account for results. This HMIS review focuses on MIP-related content and data collection practices, data flow, data quality, and data use in MIP programming.

WORLD HEALTH ORGANIZATION AND MALAWI MALARIA MONITORING AND EVALUATION RECOMMENDATIONS

In the fight against MIP, WHO recommends a three-pronged approach of IPTp, LLINs, and case management of malaria illness and anemia. These approaches are reflected in the NMCP strategic plan 2011–2015. Guidance is also provided regarding monitoring of MIP. WHO recommends six indicators to be used for monitoring national MIP programming at the output, outcome, and impact level. These indicators are shown in Table 1 below.

Table 1. WHO Recommended Indicators to Be Used for Monitoring MIP

OUTPUT INDICATORS	1. 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 LLIN use, and case management for pregnant women) 2. Percentage of HFs reporting stock-outs of the recommended drug for IPTp (currently SP) in the past month
OUTCOME INDICATORS	3. Percentage of pregnant women receiving IPTp under direct observation (first dose, second dose, third dose, according to national guidelines) 4. Percentage of pregnant women who report having slept under an LLIN the previous night
IMPACT INDICATORS	5. Percentage of low birthweight singleton live births (< 2500 g) by parity 6. Percentage of screened pregnant women with severe anemia (hemoglobin < 7g/dl) in third trimester by gravidity

Source: Blouse A: Prevention and Control of Malaria in Pregnancy in the Africa Region, 2008.

[3] Throughout this report, the term LLIN (long-lasting insecticide-treated nets) includes ITNs (insecticide-treated nets).

The source of data for output indicators is the health center or service delivery site. Outcome indicators (#3 and 4 in list above) are also measured from the health center level. The remaining indicators should be collected from household surveys (WHO, 2007).

Given the three approaches used to address MIP (IPTp, vector control including use of LLINs, and case management), monitoring efforts should also be directed at how well each of the approaches is being utilized and how each is contributing to the overall reduction in the malaria burden.

The first approach used to address MIP is IPTp with SP. In October 2012, WHO updated its policy recommendation on IPTp-SP in an effort to increase access to the intervention during ANC in all sub-Saharan African areas with moderate-to-high malaria transmission. WHO urged national authorities to disseminate the new guidance and ensure that it is implemented correctly. Previously, Malawi's national guidelines recommended that pregnant women take at least two doses of SP one month apart, in the second and third trimester, these have since been revised to align with WHO's updated policy recommendation (WHO, 2012).[4]

WHO Updated Policy Recommendation (October 2012)

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

The 2010 MDHS reports that 55% of pregnant women took the "recommended" two doses of SP during their last pregnancy. Although coverage of the first dose is higher (85%), compliance with the two-dose recommendation was and still remains low. The Malaria Indicator Survey (MIS) conducted in 2012 reports that 54% of pregnant women took two or more doses of SP. In a recent United Nations Children's Fund (UNICEF) (2013) unpublished lot quality assurance sampling, data collected from nine districts in Malawi reported that the proportion of pregnant women that took two doses was higher at 62%.[5]

The second approach used to address MIP is vector control. Recommended methods for vector control include indoor residual spraying (IRS) and distribution of LLINs. Monitoring efforts should, therefore, measure the movement of LLINs to the beneficiary population. As part of the vector control strategy for MIP, national guidelines require that every pregnant woman should receive a free LLIN in the first trimester or at the first ANC visit (MIS, 2012). LLIN distribution in itself is not sufficient; it is the use that is important, hence, the institution of indicator 4 above.
The NMCP set the following targets regarding using LLINs:

- At least 80% of children under age five and at least 80% of pregnant women sleep under LLINs (including LLINs) by 2010.

Use of mosquito nets has ownership as its base. The MDHS (2010) reported a marked increase in net ownership from 42% in the 2004 MDHS to 67% in the 2010 MDHS. Regarding net use, the MDHS reports that 35% of pregnant women slept under an LLIN the night before the survey. Since the 2010 MDHS, there has been a marked improvement regarding pregnant women

[4] According to the WHO, two doses of IPTp (IPTp2) was set as the minimum, which was interpreted by many countries as a target to be achieved. The new recommendation reflects the need to increase the number of SP doses (WHO, 2013). IPTp3+ has been rolled out to all health facilities in Malawi through the new policy and trainings, and is being practiced by health workers. However, the National ANC register is yet to be revised to include an additional column for IPT3. Currently, health workers are improvising by hand writing the IPTp3 column in the register.
[5] This higher figure could be a result of change over time in addition to UNICEF's program efforts. It should be noted that UNICEF and other donors provided support in the procurement of essential medications, including SP for IPTp, for all the HFs in all the districts.

sleeping under an LLIN. The 2012 MIS reports that 51% of pregnant women slept under an LLIN the previous night.

The third approach used to address MIP, prompt and effective case management of MIP, does not have clearly agreed upon indicators that should be used in monitoring this intervention. The current HMIS system does not collect information on case management for MIP, as it bundles all MIP cases with general adult malaria cases.

The quality of response to MIP depends on the foundation on which it is based. This foundation includes the capacity of frontline staff and infrastructure in managing interventions. This management includes accurate data capturing that will enable evidence-based decision-making for the health workers, policymakers, and funders. It is therefore vital that a greater understanding is gained regarding the practices in data collection, quality of data collected, and the use of data at the facility, district, zonal, and headquarters (program) levels.

Methods

DESK REVIEW

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

- 2011–2015 National Malaria Strategic Plan
- 2011–2015 National Malaria M&E Plan
- FY13 MOP
- Updated WHO Policy Recommendation on use of SP for IPTp
- Malawi MIP Case Study
- 2012 MIS Report
- A program implementation guide on prevention and control of malaria in the African region
- Malawi 2010 Millennium Development Goal Report
- Women's Health Passport (HP)
- ANC Register
- ANC HF Monthly Report to District
- LLIN Register
- IDSR Report
- OPD Register and Report
- Malaria Facility Monthly Report
- District Malaria Report

In the following sections, findings from the review of the above documents and findings from field visits are discussed.

KEY INFORMANT INTERVIEWS

The findings of the desk review were used to tailor interviews that were conducted in each country. Third, in-country interviews were conducted with key stakeholders at the national, district, and facility level. At each level, efforts were made to glean the perspective from three key areas: malaria, reproductive health, and HMIS. At the national level, interviews were held with staff from malaria control programs, reproductive health units, and HMIS, as well as with malaria partners including PMI; WHO; The Global Fund to Fight AIDS, Tuberculosis and Malaria (Global Fund); and nongovernmental organizations funded to support the MOH in strengthening malaria programs. The Malawi review team visited four HFs in two districts. A list of interviewees is in Annex 1. To collect information on all the above and any other necessary information for this review, an interview guide was utilized (see Annex 2).

Findings

HEALTH MANAGEMENT INFORMATION SYSTEM STRUCTURE AND FUNCTION

The HMIS is housed under the Central Monitoring and Evaluation Division (CMED) of the MoH. The division is led by a director who is supported by three statisticians, an economist, two technical advisors,[6] and a district health information system II (DHIS2) programmer. This structure extends to the district level where the HMIS section at the district health office (DHO) is headed by an HMIS officer, who usually has a statistics background. In high burden facilities, data are collected and managed by statistical clerks, who are deployed by the National Statistical Office to the MoH.

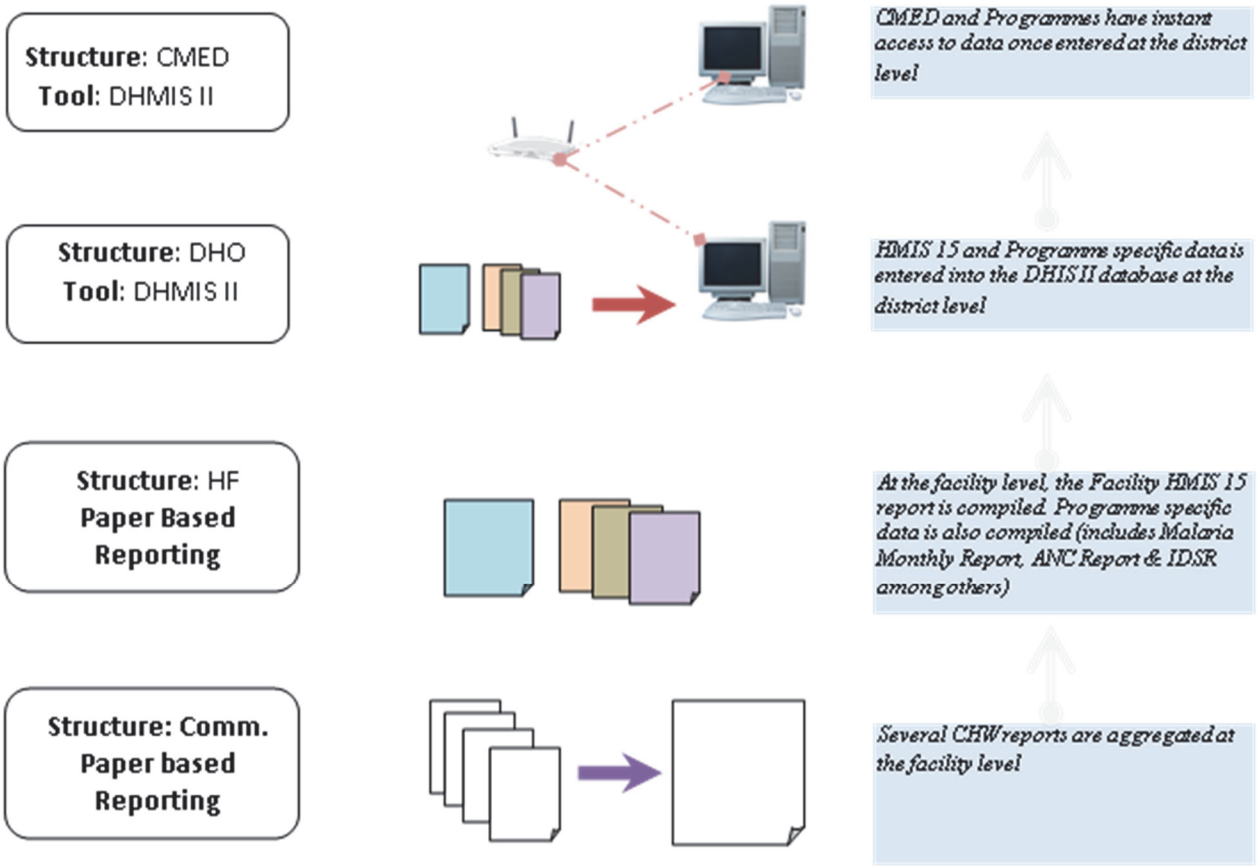
The MoH is currently using the DHIS2. This is a web-based database with access enabled to all districts reporting into the HMIS. The focal officer for data reporting at the district level is the HMIS officer. The HF is the primary source of most of the data collected by the system with a portion of the data collected from the community through a network of community health workers—health surveillance assistants (HSAs) and community-based distributors (CBDs).

At the community level, CBDs are the lowest source of data. CBDs compile monthly reports that are passed on to the next level—usually the HSAs at the HF. The senior HSA at the HF collects and aggregates all data from community-based programs and appends it to the relevant monthly facility report.

The main HMIS report is HMIS 15, a monthly report that monitors the core indicators in the HSSP. These core indicators do not, however, adequately meet the needs of MoH and donor-supported programs, and has led to a proliferation of parallel reporting by programs. In the past, the DHIS was only able to collect core indicators; however, with the advent of the DHIS2, it has become possible to include in the system data collection reports for all program-specific indicators. At the district level, therefore, the HMIS officer is responsible for ensuring that the HMIS 15 is populated with core indicator data as well as all other program-specific data. However, how well this is done depends on the collaboration between the HMIS officer and program coordinators at the district level. The HMIS system as it currently operates in Malawi can be represented by the diagram in Figure 1.

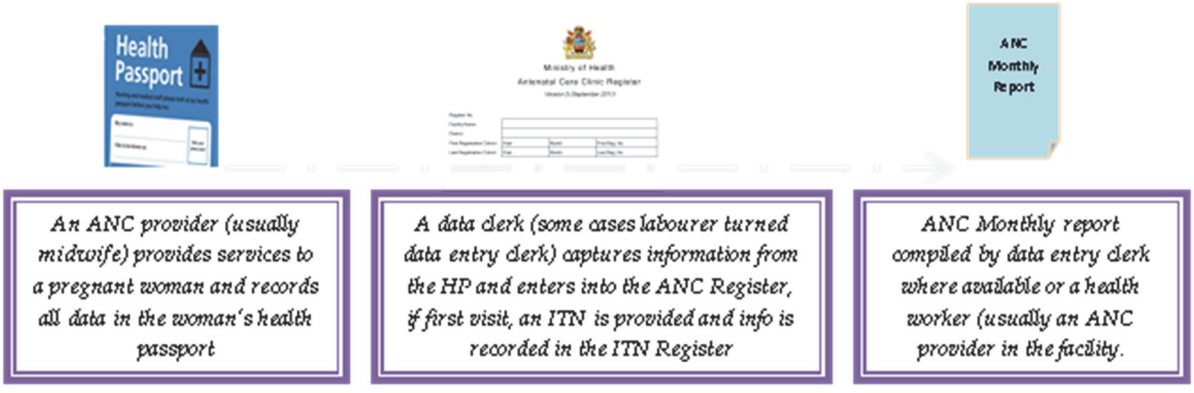
[6] Supported by International Training & Education Center for Health.

Figure 1. MIP Data Collection Practices



Sources of MIP data include the ANC and OPD records. ANC services are provided at the facility and on an outreach basis. In ANC, three documents serve as main sources of MIP data. These include the woman's HP (kept by the woman), the ANC register (kept at the HF), and the LLIN register (also kept at the HF). Data recording in these documents follows the depicted pathway in Figure 2.

Figure 2. Data Recording Pathway



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

At the impact level, the M&E plan will track seven indicators designed to measure program impact, including the direction of the under-five mortality rate and case fatality rates. Table 2 shows the indicators to be tracked.

Table 2. Impact Indicators for Monitoring Malaria as Proposed by the MSP 2011–2015 M&E Plan

IMPACT INDICATORS
1. All causes, under 5 mortality rate
2. Outpatient confirmed malaria cases
3. Outpatient malaria test positivity rate
4. Percentage of children aged 6–59 months with anemia (< 11 gm/dl)
5. Malaria parasite prevalence rate among children younger than 5 years
6. Inpatient confirmed malaria cases
7. Inpatient confirmed malaria deaths

At the outcome level, indicators for both prevention and treatment have been included, although, as noted above, indicators on case management of malaria in pregnant women are not currently being tracked. Under prevention, possession and use of LLINs, IRS coverage, and IPTp are tracked. Under treatment, indicators are tracked for stock-outs, case management for under-fives, and malaria testing (see Table 3). Similarly under the outputs, coverage of preventive interventions is being tracked, while under case management, the plan tracks commodity use and capacity issues within the health system to properly manage interventions (see Table 4).

Table 3. Outcome Indicators as Proposed by the MSP 2011–2015 M&E Plan

OUTCOMES
Malaria prevention
1. Percentage of households with at least one LLIN
2. Percentage of children under 5 years of age who slept under an LLIN the night preceding the survey
3. Percentage of household members who slept under an LLIN the night preceding the survey
4. Percentage of pregnant women who slept under an LLIN the night preceding the survey
5. Percentage of surveyed households sprayed in the last 12 months in IRS targeted districts
6. Percentage of surveyed population protected by IRS in targeted districts
7. Percentage of pregnant women who received at least 2 doses of SP for IPTp
Malaria treatment
1. Percentage of HFs with no stock-outs of antimalarial drugs for more than 7 consecutive days during the last 3 months
2. Percentage of outpatients with a negative rapid diagnostic test (RDT) or microscopy result receiving antimalarials
3. Percentage of outpatients with a positive RDT or microscopy result receiving antimalarials
4. Percentage of suspected malaria cases tested by either RDT or microscopy

Table 4. Output Indicators as Proposed by the MSP 2011–2015 M&E Plan

OUTPUTS
Malaria prevention
1. Number of LLINs distributed
2. Number of targeted structures sprayed in the last 12 months in IRS targeted districts
3. Number of districts covered by IRS
4. Number of pregnant women who received at least two doses of IPTp
5. Number of insecticide susceptibility studies done per IRS district
Malaria Case Management
1. Number of first-line antimalarial drugs (artemisinin-based combination therapy [ACT]) distributed to HFs
2. Number of confirmed cases treated with ACTs
3. Number of HFs with malaria diagnostic capacity
4. Number of laboratory staff trained in malaria laboratory diagnosis
5. Number of health workers trained in use of RDTs

This M&E plan misses an element to monitor the effects of MIP and pregnancy outcomes, as set by the WHO, because several key indicators are missing, including monitoring of stock-outs (SP) and the failure to include severe anemia and birthweight for singletons.

The summary of the findings from the desk review of HMIS forms is presented in Table 5.

Table 5. Summary of MIP-Related Content of the Malawi HMIS Recordkeeping and Reporting Forms

TOOL	IPTP RECORDED	IPTP 1	IPTP 2	IPTP 3	LLIN PROVISION TO PREGNANT WOMEN	PREGNANT WOMAN ASKED IF SLEPT UNDER LLIN	TEMPERATURE RECORDED FOR PREGNANT WOMEN	MALARIA TESTING DONE AT ANC	UNCONFIRMED DIAGNOSIS OF MIP	DIAGNOSIS BY RDT FOR PREGNANT WOMAN	DIAGNOSIS BY MICROSCOPY FOR PREGNANT WOMAN	MALARIA TEST RESULT FOR PREGNANT WOMAN	MALARIA TREATMENT GIVEN TO PREGNANT WOMAN/ REFERRAL AT ANC
Woman's HP				NA[7]			IC						
ANC Register				[8]									
ANC HF Report to District													
IDSR Monthly Report													
Malaria HF Report													
Malaria District Report													
HMIS Core Indicator Report (HMIS 15)													

Notes: Green=Yes; Red=No; NA = not applicable; IC = done but not consistently.

Other ANC data relevant to MIP are listed in Table 6.

[7] The policy to move from at least two doses to at least three doses had just been adopted at the time of the review.
[8] The tool has the capacity to record up to five doses, however, during the review there was no record seen showing IPTp 3 given.

Table 6. Other ANC Indicators Relevant to Control of MIP

DOES THE FORMAT HAVE A PLACE TO RECORD THE FOLLOWING INFORMATION?	ANC REGISTER	WOMAN'S INDIVIDUAL ANC CARD	MONTHLY REPORT	OTHER 2: MONTHLY HOSPITAL/HC MANAGEMENT REPORT
Completion instructions included	Yes	No	No	No
ANC visit	Recorded	Recorded	Recorded	Recorded for ANC 1 only
Gestation of pregnancy at visit (in weeks)	Recorded	Recorded	Not recorded	2= Recorded
Iron/folate given	Recorded # of iron and folate given together	Blank field for remarks	Recorded 120+ tabs of iron and folate together	Not recorded
Hemoglobin (Hb), packed cell volume recorded	Recorded	Hb level recorded	Not recorded	Not recorded
HIV testing done – pregnant woman	Recorded	Not recorded	Recorded	Not recorded
Prevention of Mother-to-Child Transmission – On Cotrimoxazole (prevention of opportunistic infections)	Recorded	Not recorded	Recorded	Not recorded

DATA FLOW AND REPORTING PROCESS

As depicted in the diagram in the section on HMIS Structure and Function, and as observed during the HF visits, an ANC provider sees the pregnant woman and records care provided in the woman's HP. The woman then takes her HP to a second station where the data entry clerk[9] records the data into the ANC cohort register. The cohort register is made in such a way that each page contains complete information of four pregnant women (for the five expected visits each woman should have during pregnancy). At the end of each page, there is vital summary information for the four women on the page. An ANC monthly report (for example, for the month of July 2013) provides data for a cohort that started ANC seven months before the reporting month (i.e., January 2013).

Malaria case management in pregnancy also follows a similar pathway as shown in the diagram above. In case management, a clinician sees a pregnant woman suspected of malaria and orders a confirmatory test using an RDT or microscopy. If the test result is positive, the clinician records this as MIP in the woman's HP and prescribes appropriate medication, either AL or quinine, according to the national treatment guidelines, depending on gestational age. The woman goes to the data entry clerk, who also depending on whether she has severe or uncomplicated malaria, will record her information in the ward register (where treatment is provided as an inpatient) or OPD register (where treatment is provided as an OPD patient). The IDSR report derives its data from the OPD register for malaria case management in pregnancy data.[10] Additionally, test results for pregnant women are also recorded in the laboratory register, however, in most cases, they are simply registered as an adult (older than 5 years of age) without specifying that it is malaria case management in pregnancy.

At health centers, which are usually not equipped to treat complicated malaria cases, pregnant women with complicated malaria are temporarily admitted in the maternity ward while awaiting referral to the district hospital or while under observation after administration of parenteral malarial drugs. The review team visited only one facility that had the capacity to admit patients. For this facility (Nkhotakota), pregnant women were admitted in the medical ward.

As indicated in Table 5, the HMIS core indicator report (HMIS 15) does not currently collect any MIP case management indicators. It only collects malaria incidence and mortality data in children under the age of five and adults above the age of five as a general population. Program-specific reporting related to malaria includes the Monthly Facility Antenatal report, which collects data on the number of SP doses taken and on LLIN distribution. The NMCP's monthly report collects data on ambulatory and inpatient malaria cases and the kind of confirmation done. It also collects information on commodities received and used. The IDSR collects data on severe and uncomplicated MIP, in addition to collecting the same data among under-fives and above-fives as a population group through the IDSR structure.

[9] Trained data entry clerks are not a common feature in the HFs, especially nongovernment HFs.

[10] Although the IDSR could be considered as a tool for MIP data—especially case management—the reporting rates for this report have declined sharply (in the range of 20%–40%) because of lack of funding despite presence of IDSR structures at the district level. Efforts have shifted to monitoring outbreaks.

MALARIA IN PREGNANCY DATA QUALITY

Information regarding SP doses taken and whether a woman received an LLIN or not is recorded in the ANC cohort register. When used correctly, the ANC cohort register provides a high-level of quality data. The quality of this data (SP doses taken) can be cross verified with data recorded in the woman's HP. Besides the HP, LLIN distribution data are also captured in an LLIN register with a space for the woman's signature acknowledging receipt of the LLIN. Women that cannot read or write use a thumbprint to acknowledge receipt.

However, data quality can be affected by several factors, including transcription, recording, and aggregation errors. To ascertain the quality of data, two indicators—number of women who received one dose of SP and number of LLINs distributed to pregnant women—were followed in all the four facilities visited. For the number of women that received one dose of SP, there was an overall variance between data reported and that verified of +12. This number means that for these facilities, and for the specific months, data was over-reported by 12. For LLIN distribution, the data was underreported by 1 (variance of -1). Common sources of errors included incorrect summaries and missing register pages. See Annex 3 for more detailed results of this data quality review. It is also informative to review scanned copies of aggregate data collection forms used for reporting MIP data, found in Annex 4.

The HIV and AIDS unit was, at the time of the review, maintaining a parallel data collection system that was collecting 100% of ANC monthly reports from all ANC service points to monitor prevention of mother-to-child transmission related indicators, including IPTp. Malaria case management is not collected on the ANC report, therefore, it is not included in this parallel system.

For case management, transcription errors were the most important problem with the quality of data. Although malaria diagnosis in children and adults each has a diagnosis code (32a and 32b), MIP does not. Therefore, even if a clinician is able to clearly note in the HP that it is a case of MIP, the data entry clerk records this as just malaria in adults. Monthly data are compiled out of the registers without women's HPs being available for verification, which may lead to inaccuracy in reporting. Where there are attempts to collect this data, custom diagnosis codes are used (i.e., in Dowa, Mvera Mission was collecting MIP as code (32 p). Although at the district level this might yield fairly good quality data, it cannot be summarized beyond the district level because MIP cases do not have a standard code or report element.

Overall, HMIS data quality is perceived to be low to medium by program and stakeholders at both the national and district levels, and this perception is supported by the data quality review results in Annex 3. The main reasons for this rating were given as the lack of training among those responsible for data collection at source, late and incomplete reporting, and incorrect aggregation (i.e., data from more than one month bundled into a single month). From evidence gathered during the review, the differences in reporting formats for the same program means the same data are collected differently, introducing potential errors in the data.

USE OF MALARIA IN PREGNANCY DATA

Four potential levels were identified at which MIP data could be used. These levels included:

1. Facility level
2. District level
3. Zonal level
4. National /program level

At the facility level, use of data ranged from good use (for example, Mtosa Health Centre, Nkhotakota district hospital, and Chankhungu Health Centre—where data are analyzed, compared against targets, and gaps are discussed; health education topics developed from gaps identified)[11] to limited use (for example, Mvera Mission—use of data is limited to compilation and sending to the district). One distinct difference between the HFs in question is the level and timing of support by a USAID-funded project— Support for Service Delivery Integration (SSDI). Although Mtosa, Nkhotakota, and Chankhungu started earlier in the year to receive technical support on data management, Mvera Mission was just beginning at the time of this review.

At the district level, both Dowa and Nkhotakota districts indicated that they were able to hold cluster data review meetings with HFs in the given cluster. In addition, both districts indicated receiving support from SSDI to collect data from all the HFs, as well as to provide instant feedback to the HFs. This support ensured a high reporting rate at the district level and an enhanced quality of data. Although this high reporting rate may have been the case, these benefits were limited in scope as data entry into the DHIS2 was ***reportedly*** highly dependent on the availability of Internet connectivity.[12] At the time of the review, both districts were without connectivity because of non-payment of bills, which reduces usability of the data.

In contrast, Ntchisi district has just started receiving support from the CDC-supported Elizabeth Glaser Pediatric AIDS Foundation (EGPAF). This support enabled the district to conduct the July–September 2013 quarterly review with facilities at the district level. However, data collection still remains a challenge, with most program data reporting rates ranging from 50%–80%, notwithstanding the 100% HMIS 15 reporting rate. Ntchisi district is challenged with the lack of training for statistical clerks. Regarding data use, the HMIS officer indicated that a report produced every quarter covers most indicators, including MIP indicators.[13] The CDC supports Management Sciences for Health and EGPAF to target all districts not reached by the SSDI Project. The support is targeted at improving service delivery and strengthening systems using HIV as the entry point. The support provided to HMIS is limited to HIV data use for decision-making.

At the zonal level, data are aggregated and discussed during quarterly reviews. These reviews are facilitated by CMED. However, because of the lack of resources, these reviews are rare. When they do happen, participants are drawn from data users whose programs are being reviewed; reviews are focused, dealing with particular program areas. At the time of this review, the Central West Zone was planning a quarterly review and malaria and MIP indicators were planned for inclusion in the review. The zonal M&E specialist reported that the zone compiled a report on program data collected in the zone on selected indicators; however, the circulation of the report was limited to the zonal management offices without trickling down to the district or facility level.

At the national and/ or program level, data are aggregated and reported through the biannual and annual report produced by CMED. Until 2013, the coverage of indicators in the report was limited to those reported under HMIS 15. However, the department has indicated that the scope is likely to widen to include program specific indicators because of the inclusion of these indicators in the DHIS2 database. At the program level, data are used for quantification and to identify gaps for program improvement. From the first quarter of 2014, there are plans to conduct quarterly and annual routine data quality reviews with the aim of improving the quality of malaria data including data on MIP.

[11] Based on interviews conducted with key informants in the facilities.
[12] Further follow-up indicated that the DHIS2 has the capability to work offline for data entry, storing data locally, and updating on restoration of connectivity.
[13] The HMIS officer reported that LLIN distribution was included in the report; however, he indicated that SP uptake was not included in the quarterly report.

STOCK MANAGEMENT

Commodity availability is an important determinant of access and utilization of services. The MIP review exercise checked the stock status for registers, vector control (LLINs), IPTp (SP), and case management (parenteral and otherwise). See Annex 5 for details.

In all four HFs visited, none of the facilities had a stock-out of registers. In the past when facilities have had stock-outs of registers, in some cases, they have used old registers with space available to record, and in other cases, they have used plain paper and have improvised fields to record information.

Stocks of SP were available in all the HFs at the time of the review and were mostly available all the time. Case management drugs, including quinine and ACTs, were most at risk of not being available. At the time of the review, two of the four HFs (Mtosa and Nkhotakota district hospital) were stocked out of quinine tablets, and one facility (Nkhotakota) was stocked out of both quinine tablets and quinine for intravenous administration.

LLINs were available at the time of the review. However, two facilities (Mvera and Mtosa) mentioned that they had run out of stocks for one week (Mvera) and one month (Mtosa) in the six months before the review.

Discussion

STRENGTHS AND OPPORTUNITIES

The review of the MIP reporting happened at an opportune time, a time when the NMCP's strategic plan and M&E framework were being reviewed. It also happened at a period when a review of the HMIS system was being envisaged and discussions were underway regarding which indicators should be included. Current efforts to review data collection for MIP include amending diagnosis coding for diseases to include MIP. Currently, code 32 denotes malaria, with 32a denoting malaria in under-fives, and 32b denoting malaria in adults (older than 5 years of age). The current proposal intends to introduce code 32c for confirmed MIP and 32d for presumptive MIP. The proposed changes will also include the use of 32a for confirmed malaria in the general population (excluding pregnant women) and 32b for presumptive or clinical diagnosis of malaria in the general population (excluding pregnant women). Similar changes are proposed for inpatient management. It is hoped that these proposals would help in improving the quality of data for case management in MIP.

According to the HIV and AIDS Unit, changes to data collection tools and reports would require approximately USD 3 million and two years for printing tools and retraining data collectors and health workers on the use of the tools. Since the PMTCT Program started in Malawi, the department of HIV/AIDS has been in charge of managing and revising the ANC and Maternity Data Collection Tools and Reports. This is because the ANC and Maternity Registers were revised to include HIV-related elements, as a means to better track implementation of the PMTCT program at facility level. HIV-related elements such as HIV testing for all pregnant women, and Option B+ initiation for all HIV+ pregnant women are being tracked using the ANC and Maternity Registers (and were revised as such). These revisions were funded by the HIV department. Realizing that the HIV department was better funded than the Reproductive Health Department at that time, ongoing management and revisions of these tools was task-shifted to the HIV department.

Findings from interviews with the NMCP, RHD, and SSDI indicate that the current revision (introducing new coding for malaria) is meant to improve reporting for MIP case management. This change is likely to greatly help in improving the reliability of the data that will be collected through the system.

WEAKNESSES

Despite improved coding of malaria test results, inherent systemic problems still remain; chief among them is the physical transfer of the clients to the laboratory for confirmatory testing, which means spending more time in the queue for women to access services and the subsequent loss of data regarding malaria testing results not being recorded in the ANC register. The advent of RDTs has provided an opportunity for non-technical (non-laboratory trained) health care workers to conduct confirmatory testing especially for non-complicated malaria cases. Therefore, the use of RDTs presents an opportunity for integrating confirmatory testing in ANC, making ANC a one-stop service—with the exception of complicated or severe cases of malaria that can be referred to the ward or district hospital for microscopy confirmation and treatment. This reform would facilitate the potential for collection of most of the data not currently collected. However, the key question is whether the value of additional data that will be possible with this integration is worth the cost of changes to registers and other data collection tools that will be necessary to effect the change. The use of RDTs should be limited to confirmatory testing in ANC because universal screening would be an unnecessary step and its impact is already mitigated by IPTp. Use of RDTs in ANC will, therefore, become a route to malaria case management in ANC, while more complicated cases are referred for specialized management in the ward or at the district hospital. The cons for such a system change include the need for increased human resources, institution of control mechanisms for commodities (RDTs and other supplies), and investment in the training of midwives in the use of RDTs.

Current data use, especially at the national level, is limited to program course correction with very little, if any, applied for research and policy development within program implementation. There is a need for continued inquiry into the impact of, for example, generalized LLIN distribution regarding pre-elimination of malaria efforts. Similarly, what strategies would the country need to employ if it has to start working toward pre-elimination of malaria coupled with the costs associated with reaching pre-elimination targets? The foundation for starting to answer these questions can be found by using the data that is already being collected.

RECOMMENDATIONS

Based on the findings of this review and the discussion above, the following recommendations are made:

Policy

- To help improve monitoring of MIP case management, policies should be reviewed to provide consistent guidance regarding case management of MIP: where it should occur, by whom and how it should be reported. Integration of clinical care and diagnosis within the maternal and child health section (for malaria and other diseases) and encouragement of all pregnant women to be referred to the ANC section, both from community and within the facility, can support creation of a one-stop service center for pregnant women. This change would include specifically moving confirmatory testing of MIP using RDTs to ANC staff.
- A policy may also be useful to navigate decisions regarding HMIS updates. According to the HIV & AIDS unit, there is a high cost associated with the introduction of new data collection regimes. Therefore, it seems logical to have rules to guide how and when to introduce new changes. These should include affirmative response to the following questions:

a. Does the added value gained by introducing the changes outweigh the cost of introducing the changes?
b. Are current data being collected optimally used to drive program and policy implementation?
c. Are there no other alternative systems that might produce the data at a cheaper overall cost while achieving the same objective of introducing the new changes?

Only if the responses are positive should changes be envisaged. In the current situation, resources for the review and change implementation are available through the current, ongoing review and update of the HMIS. However, a clear consensus needs to be gained for the changes to be fully supported. A case in point in the current scenario is the inclusion of the code for presumptive or clinical diagnosis for malaria in the general population and for MIP. From some stakeholders, it was felt that the inclusion of presumptive or clinical diagnosis would give a leeway for health workers to presumptively treat malaria, which would be out of line with new policy directions and would lead to inflation of the malaria incidence rate.

Coordination

For clinical and HMIS-related changes, gaining concurrence from all stakeholders involved becomes of paramount importance to ensure buy-in for the revised clinical policies, HMIS tools, and increased returns on data. Another key area requiring coordination, specifically between NMCP and Reproductive Health, is use of data. As pre-elimination goals are set, use of existing data will help document current quality of programs and inform ways to improve MIP programming.

HMIS Strengthening

- Support consensus development on case management indicators and data quality assurance for case management.
- Ensure wide consultation and feedback from M&E specialists, program managers, and technical malaria specialists regarding the proposed changes in the monitoring of MIP interventions. Once these changes have been agreed upon, uniform tools should be made available on the MoH website for all district offices to download, print, and use for data collection. This effort would reduce the use of outdated tools or tools with local alterations. In addition, following the revision, training should be provided to those responsible for data collecting covering the use of the new tools and reporting forms.
- Continue the support currently provided to the MoH and malaria implementing partnerships to continue improvement in the MIP data use and management. This support could be targeted at strengthening of MIP subtechnical working committees at the district and zonal levels coordinated by the NMCP and RHD or, where these are not available, by malaria implementing partners. Data quality and case management of MIP could be specific agendas for the committees to consider.
- Support the use of data for program course correction, for generating evidence for increased program effectiveness, and preparation for pre-elimination activities. Although mentioned above, it is mentioned again because this support is critical.

Capacity-Building

- Continue to provide technical support for capacity development at the NMCP regarding funding positions, including the M&E position at the NMCP, and technical assistance to CMED with specific capacity development targets to be achieved.

- Trainings of health workers regarding new protocols for MIP control and case management were underway at the time of the review. This training should be encouraged and extended to support staff responsible for aggregating data (i.e., statistical clerks or those performing duties of statistical clerks). This training should integrate issues of data collection and reporting, targeting both providers and their supervisors.

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 Reproductive Health Unit, and including WHO, PMI, UNICEF and implementing partners, discuss the findings and the stated recommendations of this report and identify and prioritize steps for moving forward.

Annex 1. List of Key Informant Interviewees

NAME	POSITION	INSTITUTION
1. Patrick Naphini		CMED
2. Thoko Sambakunsi	M&E Specialist	(MoH) Central West Zone
3. Mischeck Luhanga	Advisor - M&E	NMCP
4. E. Kaunda	MIP Focal Person	NMCP
5. Maganizo Monawe	Technical Advisor	CMED
6. Dr. Andreas Jahn	Advisor – M&E	HIV and AIDS Unit
7. Daniel Mwafulirwa	HMIS Officer (Dep.)	Dowa DHO
8. Bridgton Ngónga	Malaria Coord. (Dep.)	Dowa DHO
9. Aubrey Mtondera	In-Charge	Chankhungu Health Center
10. Conestres Chagwirampeni	Nurse/Midwife	Chankhungu Health Centers
11. Rhoda Mazungwi	Nurse/Midwife	Mvera Mission
12. Dziwenji Chasweka	In-Charge	Mtosa Health Center
13. Waliko Kayuni	Nurse Midwife	Mtosa Health Center
14. Oscar Msutu	HMIS Officer	Nkhotakota DHO
15. Faita Banda	Nursing Officer	Nkhotakota District Hospital
16. Noah Chirwa	Malaria Coordinator	Nkhotakota DHO
17. Fanny Kachale	Director	Reproductive Health
18. Diana Khonje	MIP Focal Person	Reproductive Health
19. James Chilembwe	M&E Specialist	Reproductive Health
20. Maurice Mbang'ombe	Epidemiologist	Epidemiology Unit (IDSR)
21. Jacob Kaonga	M&E Specialist	Abt Associates (SSDI Systems)
22. John Munthali	Malaria Specialist	Jhpiego (SSDI Services)
23. Mackenzie Gondwe	HMIS Officer	Ntchisi DHO

Annex 2. Interview Questions

POLICY AND DIRECTORATE INTERVIEWS/DEVELOPMENT PARTNERS/IMPLEMENTERS

1. What are some ways MIP data are used currently? Do you feel there are any data missing to really show program performance?
2. What are the current gaps?
3. Is there any movement toward documenting malaria case management in pregnancy in the HMIS?
4. Have you in the recent past been able to conduct data quality assessment on MIP indicators?
5. Regarding packaging and dissemination of MIP data, what are the current activities to package MIP data or plans to do so?
6. In your opinion, how good are the MIP data coming through the system?
7. What are some of the shortcomings of these data?

PROGRAM MANAGERS AND M&E SPECIALISTS

Were you involved in the design of the 2011–2015 MSP M&E plan? If you were, can we discuss the following?

1. In coming up with IMPACT indicators for the MSP M&E Plan, why was maternal mortality not included as an impact indicator?
2. A review of the MSP M&E plan shows that the plan is not monitoring stock-outs of SP at ANC, would you know why this is the case?
3. A review of the MSP M&E Plan and existing tools also do not include disaggregation of case management using ACTs, disaggregated by pregnancy status for women; what would be the implication of including such data elements in reporting?

FACILITY LEVEL

Antenatal Care

Explore the following questions regarding prevention, case management, and related data flow, quality, and use:

Intermittent Preventive Treatment of Malaria in Pregnancy

1. Who is responsible for running ANC clinics at this facility? How many are they? (*Please make sure that you are able to interview a health worker that actually conducts ANC clinics, then continue to ask the following questions*)
2. Do you provide SP to pregnant women? How many doses do you provide to them? Are you able to observe them take the SP?
3. Where do you record once you have given SP to a pregnant woman? Can I see it?

4. What happens when a pregnant woman is also HIV-positive regarding SP?
5. Who is responsible for reporting on a monthly basis? Can I see a copy of a monthly report that you have done which shows malaria in pregnancy related reporting?
6. What are some of the challenges you encounter when compiling a monthly report especially regarding MIP?

Data Quality Directions

(Ask for the HF to provide you with a monthly report done in the past three months, compare data found in this report and data reflected in the district monthly report that you will have collected earlier; if this is not available, make a copy of the report for comparison at a later time)

Case Management

1. If a pregnant woman comes and complains that she has malaria, or you suspect that she has malaria, what happens? (*Probe: is her temperature taken? Does she get confirmatory testing with RDTs or microscopy, if confirmatory test is done, where is the result recorded? Where is the treatment recorded?)*
2. Where does this information go from where it is initially recorded?
3. If the woman has severe malaria and needs to be observed as an inpatient, where is the woman admitted (medical ward or maternity ward)
4. Where is information about these records?

Long-Lasting Insecticide-Treated Nets

1. Do you provide LLINs to pregnant women?
2. Where do you record once a woman has been given an LLIN for use at home?
3. Can I see where this is recorded? Is this the same as where IPTp is recorded?

Data Use

1. What do you do with the data you collect on a daily/monthly basis in the different registers (probe especially for antenatal care registers)?
2. What do you do with the MIP data that you collect on a daily/monthly basis?
3. Where do you send the MIP reports that you compile on a monthly basis?
4. How often do you get feedback on the reports you send to the district/HQ?
5. Are there any forum(s) for data review at facility or district level? (*Probe: Who (organization or individual) facilitates these reviews?*)
6. Do you find the reviews useful?

Availability of Registers and Reporting Forms

1. Do you always have registers and report forms for use?
2. What do you do when they are not available?
3. Do you always have malaria reporting forms available?
4. What happens when they are not available

Stock Management

1. Do you ever run out of stocks for SP or LLINs, quinine, or ACTs? When was the last time you had a stock-out of SP or LLINs?
2. What do you do when you run out of stocks?
3. How useful is the stock reporting for malaria as contained on form HMIS-5?
4. Does it respond to the needs of the HF?

Outpatient Department

Review patient flow and related flow of data for diagnosis and treatment of malaria. Explore the following questions regarding prevention and case management and related data flow:

1. What happens when a pregnant woman looks to have malaria or complains to have symptoms of malaria? Do you do confirmatory testing?
2. How is malaria testing and treatment in pregnant women recorded in the register? Is pregnancy status noted in the register? Does it get reported as malaria or malaria in pregnancy?
3. How do you aggregate data from the OPD register into the monthly OPD report?
4. What do you do with the data (*get at use; probe: if it is graphed or compared against expected number of pregnant women in catchment area, quality explored*)
5. Is the data generally of low, medium, or high quality for:
    a. Malaria diagnosis
    b. Malaria treatment

Annex 3. Data Quality Review Tables

NUMBER OF WOMEN WHO TOOK 1 DOSE OF SP				
Name of Facility	Months	Reported	Verified	Variance
Chankhungu	January	15	15	0
	February	15	17	-2
	March	27	25	2
Mvera Mission	January	28	30	-2
	February	29	26	3
	March	24	21	3
Mtosa	July	3	5	-2
	August	11	11	0
	September	2	2	0
Nkhotakota DHO	July	121	117	4
	August	102	98	4
	September	131	129	2
	Total	508	496	12

NUMBER OF LLINS DISTRIBUTED				
Name of Facility	Months	Reported	Verified	Variance
Chankhungu[14]				0
				0
				0
Mvera Mission	January	32	33	-1
	February	13	26	-13
	March	18	16	2
Mtosa	July	10	10	0
	August	21	21	0
	September	16	17	-1
Nkhotakota DHO	July	234	226	8
	August	239	240	-1
	September	281	276	5
	Total	864	865	-1

[14] The team was unable to verify this data at the time of the consultant's visit because the ITN register could not be located at the facility as the key informants were struggling to save the life of a five year old with malaria, which in the end they were unable to do.

Annex 4. Forms in Use for Data Collection

Data Collection Form 1. Monthly Malaria Activity Reporting Form

Health Facility Level DA

Monthly Malaria Control Program Activity Reporting Form

1. **General Information**

Name of Health Facility: DOWA DISTRICT HOSPITAL Month: JUNE Year: 2011

2. **Malaria Cases**

Reported Cases and Deaths	Under 5Years	Over 5 years	P/Women	Total
Total Number of Malaria Cases	263	811		
Total Number of Cases	606	~~1431~~ 1074		14917
Total Number of Malaria Admissions				
Total Admissions		213		
Total Number of Malaria Deaths				
Total Deaths				
Total Number of LA Treatment Failures				

Tested Cases	No.
Total Number of Cases Tested For Malaria Microscopy	
Total Number of Cases Tested +ve	
Total Number of Cases Tested For Malaria RTD	
Total Number of Cases Tested RTD +ve	

3. **Intermittent Preventive Treatment(IPT)**

IPT	No.
Number of P/Women Received 2 Doses of SP	
Number of P/Women Starting Antenatal	

4. **ITNs and RTDs**

Free ITNs Distribution System	
# of Free ITNs in Stock *(begging of the month)*	
# of Free ITNs Received *(during the month)*	
# of New Born Babies Received Free ITNs	
# of New Born Babies Received Free ITNs at 1st Vaccination	
# of U5 Received Free ITNs	
# of New Antenatal Visits Received Free ITNs	
# of Free ITNs in Stock *(at the end of the month)*	
# of Days With Stock out of Free ITNs *(if any)*	
Mass Distribution of ITNs *(if any)*	

RTDs	
# of RTDs in Stock *(begging of the month)*	
# of RTDs Received *(during the month)*	
# of RTDs Used *(during the month)*	
# RTDs in Stock *(at the end of the month)*	
# of Days With Stock out of RTDs *(if any)*	

5. **Ant – Malarial Drug**

Ant-Malarial Drugs Used			Balance in Stock	If out of Stock, Duration of Stock out
LA	1 x 6	tablets	tablets	
	2 x 6	tablets	tablets	
	3 x 6	tablets	tablets	
	4 x 6	tablets	tablets	
Artesonate		tablets	tablets	
Amodiaquine		tablets	tablets	
SP		tablets	tablets	
Oral Quinine		tablets	tablets	
IM/IV Quinine		ampoules	ampoules	
Paracetamol		tablets	tablets	
50% Dextrose		ampoules	ampoules	
Others (specify)				

6. **Community Case Management**

Cases	
Total Number of Village Clinics	
Number of Village Clinics Reported	
Total Suspected Malaria Cases Seen	
Total Number of Cases Tested with RTDs	
Number of Malaria cases Tested RTD +ve	
Total Malaria Cases Referred	

Logistics		Used	Balance	If out of Stock, Duration of Stock out	No.
LA	1 x 6				
	2 x 6				
	3 x 6				
	4 x 6				
# of RTDs in Stock *(begging of the month)*					
# of RTDs Received *(during the month)*					
# of RTDs Used *(during the month)*					
# RTDs in Stock *(at the end of the month)*					
# of Days With Stock out of RTDs *(if any)*					
# of Clinics with Stock out of LA					
# of Clinics with Stock out of RTDs					

Name of Reporting Person _____ Signature _____ Date _____

KK

MINISTRY OF HEALTH
NATIONAL MALARIA CONTROL PROGRAMME
MALARIA HEALTH FACILITY MONTHLY REPORTING FORM

Health Facility: MTOSA | Month: SEPTEMBER | Year: 2013
District: NKHOTAKOTA
Date reported to district: 04/10/2013

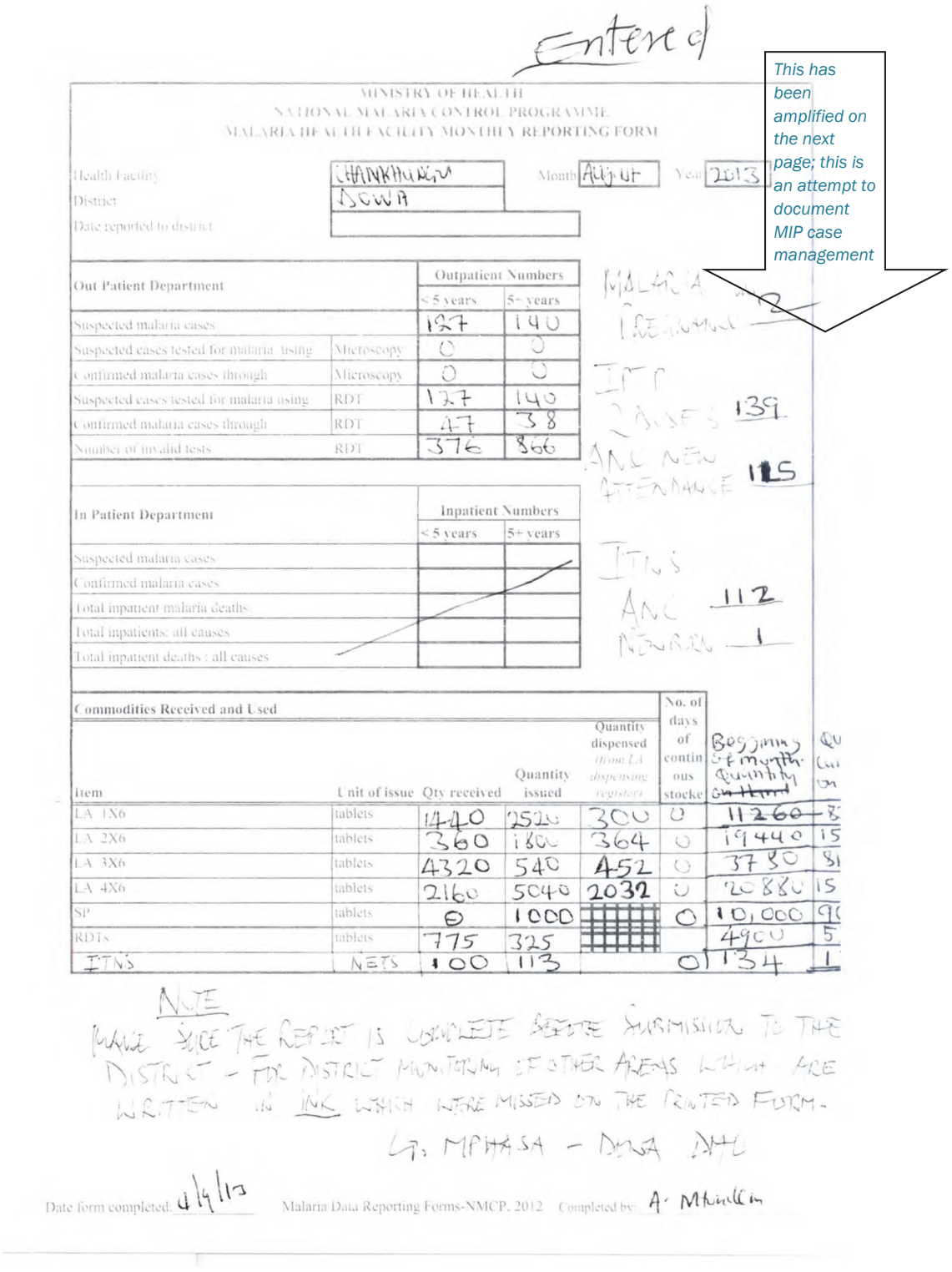
Out Patient Department		Outpatient Numbers < 5 years	Outpatient Numbers 5+ years
Suspected malaria cases		229 ~~631~~	~~772~~ 321
Suspected cases tested for malaria using	Microscopy	0	0
Confirmed malaria cases through	Microscopy	0	0
Suspected cases tested for malaria using	RDT	229	321
Confirmed malaria cases through	RDT	190	223
Number of invalid tests	RDT	0	0

In Patient Department	Inpatient Numbers < 5 years	Inpatient Numbers 5+ years
Suspected malaria cases	0	0
Confirmed malaria cases	0	0
Total inpatient malaria deaths	0	0
Total inpatients, all causes	0	0
Total inpatient deaths - all causes	0	0

Commodities Received and Used					No. of days of continuous stocke
Item	Unit of issue	Qty received	Quantity issued	Quantity dispensed (from LA dispensing register)	
LA 1X6	tablets	360	2400	2958	0
LA 2X6	tablets	720	684	684	21dy
LA 3X6	tablets	540	1800	1602	0
LA 4X6	tablets	1440	1548	1536	0
SP	tablets	4000	0		0
RDTs	tablets	325	550		21dys

Date form completed: 04/10/13 Malaria Data Reporting Forms-NMCP, 2012 Completed by: Patrick B Banda

Data Collection Form 3. National Malaria Control Program Monthly Reporting Form



Entered

This has been amplified on the next page; this is an attempt to document MIP case management

MINISTRY OF HEALTH
NATIONAL MALARIA CONTROL PROGRAMME
MALARIA HEALTH FACILITY MONTHLY REPORTING FORM

Health Facility: CHANKHUNGU Month: July-Oct Year: 2013
District: DOWA
Date reported to district:

Out Patient Department		Outpatient Numbers < 5 years	Outpatient Numbers 5+ years
Suspected malaria cases		127	140
Suspected cases tested for malaria using	Microscopy	0	0
Confirmed malaria cases through	Microscopy	0	0
Suspected cases tested for malaria using	RDT	127	140
Confirmed malaria cases through	RDT	47	38
Number of invalid tests	RDT	376	866

MALARIA 185
IPT 2 ANC'S 139
ANC NEW ATTENDANCE 185

In Patient Department	Inpatient Numbers < 5 years	Inpatient Numbers 5+ years
Suspected malaria cases		
Confirmed malaria cases		
Total inpatient malaria deaths		
Total inpatients: all causes		
Total inpatient deaths : all causes		

ITN'S ANC 112 NEWBORN 1

Commodities Received and Used					No. of days of continuous stocke	Beginning of month Quantity on Hand	
Item	Unit of issue	Qty received	Quantity issued	Quantity dispensed (from LA dispensing register)			
LA 1X6	tablets	1440	2520	300	0	11260	8
LA 2X6	tablets	360	1800	364	0	19440	15
LA 3X6	tablets	4320	540	452	0	3780	81
LA 4X6	tablets	2160	5040	2032	0	20880	15
SP	tablets	0	1000		0	10,000	9(
RDTs	tablets	775	325			4900	5
ITN'S	NETS	100	113		0	134	1

NOTE
PLEASE SURE THE REPORT IS COMPLETE BEFORE SUBMISSION TO THE DISTRICT - FOR DISTRICT MONITORING OF OTHER AREAS WHICH ARE WRITTEN IN INK WHICH WERE MISSED ON THE PRINTED FORM.
Eg: MPHASA - DOWA DHO

Date form completed: 4/4/13 Malaria Data Reporting Forms-NMCP, 2012 Completed by: A. Mkandawire

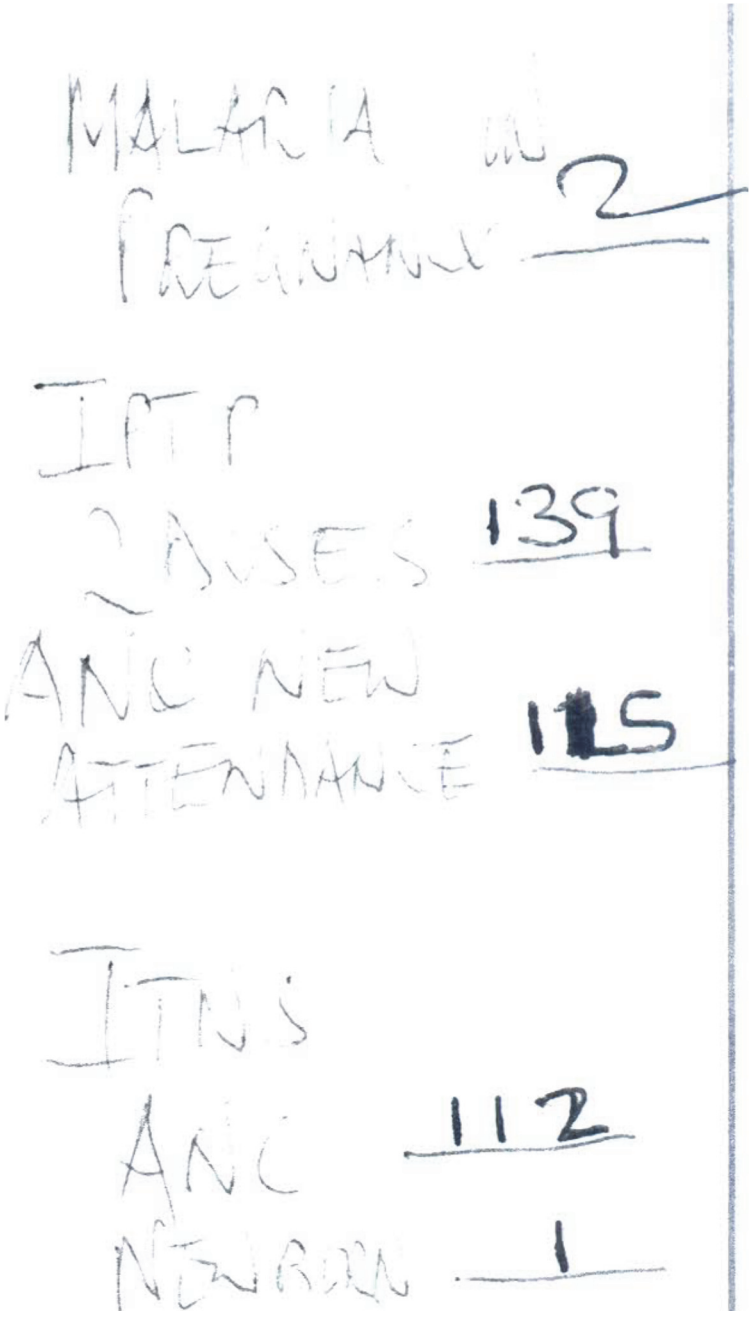
Data Collection Form 4. Excerpt for Improvised Malaria in Pregnancy Reporting

MIP = 2

IPTp 2 Doses = 139

ANC New Attendance = 115

LLINs:
ANC = 11
Newborn = 1



Data Collection Form 5. Summary Report: Malaria Control Program

To MCH/HIV co-ordinator
Dowa DHO

Ministry of Health
Malaria Control Programme
~~District~~ Summary form

Health Facility: Chankhungu Month: July Year: 2013
District: Dowa
Date reported to District: Number of H/Facilities:
Number of H/Facilities reporting:

Case Management	Outpatient numbers <5 years	5+ years	Malaria in pregnancy	Number
Suspected malaria cases	114	134		1
Suspected cases tested for malaria microscopy	0	0	[redacted]	
Confirmed malaria cases microscopy	0	0		
Suspected cases tested for malaria RDT	114	134		
Confirmed malaria cases RDT	40	40		
Invalid malaria tests RDT	0	4		
Total OPD attendance	328	873		
	Inpatient Number		IPTp in pregnant women	Number
Case Management	<5 years	5+ years	2 doses	~~102~~ 126
Suspected malaria cases			First ANC visit	102
Confirmed malaria casees			**LLINs Distribution**	**Number**
Total inpatient malaria deaths			LLINs given to < 5 children	0
Total inpatients			LLINs given to ANC clients	102
Total inpatient deaths			Total LLINs distributed	102
			Total LLINs received	100

Commodities received and used

Item	QTY on hand	QTY received	QTY issued	QTY dispensed from LA register	QTY on hand at end of month	No of days of
LA 1X6	11500	1440	1950	1228	11260	0
LA 2X6	19440	360	7200	2465	28280	0
LA 3X6	3750	540	1080	870	4320	0
LA 4X6	20880	2160	5040	2056	~~43760~~	0
SP	~~9~~ 1000	1000	1000	[redacted]	10,000	0
MRDTs	4700	1250	225		3350	0
LLINs						

Date form completed: 5/8/13
Compiled by: Mtonda

ANC CLINIC – FACILITY MONTHLY REPORT

Version 3

Jan 2012

ANC site name	Mzimba		
Reporting Year	2013	Reporting Month	March
Was any client served at this site during this month? If no, still submit this report		Y	N

Reporting Month (circle)	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓
Booking Cohort	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun

Reporting Month

New women registered	141

Booking Cohort

Visits per woman

1	Tot. with 1 visit	14
2	Tot. with 2 visits	23
3	Tot. with 3 visits	38
4	Tot. with 4 visits	32
5	Tot. with 5+ visits	3
	Tot. women in cohort	110

Week of first ANC visit

6	Tot. started in wk. 0-12	9

(Pre-) Eclampsia

7	Tot. with pre-eclampsia	0

TTV doses

8	Tot. received 2+ doses	16

SP doses [1]

9	Tot. received 0 doses	0
10	Tot. received 1 x 3 tabs	27
11	Tot. received 2 x 3 tabs	83

FeFo tablets [1]

12	Tot. received 120+ tabs	35

Albendazole

13	Tot. received 1 dose	169

ITN (bed nets)

14	Tot. received ITN	92

Syphilis status [1]

15	Negative	0
16	Positive	0
17	Unknown	110

HIV test result [1]

18	Previous negative	1
19	Previous positive	0
20	New negative	51
21	New positive	2
22	Not done	56
	Tot. women HIV+ (19+21)	2

CPT

23	Women on CPT	2

NVP syrup dispensed for baby

24	Tot. received NVP	2

Final ART status mother [2]

25	Tot. not on ART	0
26	Tot. already on ART	0
27	Tot. started ART at 0-27 weeks of preg.	2
28	Tot. started ART at 28+ weeks of preg.	0

Report filled

Date	
Name	Martin
Phone	0999[illegible]

Notes

Report received

Date	
Name	

1 Check: Total of these sections must add up to total number of women in cohort
2 Check: Total of this section must add up to total women HIV+

Data Collection Form 7. Monthly Surveillance Summary Report (IDSR)

№ 083386

Monthly surveillance summary report form in Malawi

Health Facility Nkhunga District NKK Region C Month SEP Year 2013

Number of sites that are supposed to report 1 Number of sites that reported on time 1

Number of sites that reported late 0

		Out-Patient Cases	In-Patient Cases	In-Patient Deaths
Malaria <5 years	Uncomplicated	393		
	Severe		0	0
Malaria 5+ years	Uncomplicated	423		
	Severe		0	0
Malaria in Pregnant Women	Uncomplicated	4		
	Severe		0	0
In-Patient Malaria with severe anaemia (<5 years)			0	0
Uncomplicated Malaria <5 years, lab-confirmed		393		
Uncomplicated Malaria 5+ years, lab-confirmed		423		
Pneumonia (<5 years)		22		
Severe Pneumonia (<5 years)			0	0
Very severe Pneumonia (<5 years)			0	0
Diarrhoea with dehydration		152	0	0
New AIDS cases		0	0	0
Male Urethral Discharge		8		
Male Non-vesicular Genital Ulcer		0		
Female Non-vesicular Genital Ulcer		0		
Diarrhoea with blood		31		
Schistosomiasis urinary		0	0	0
Schistosomiasis intestinal		0	0	0

Zero reporting for immediately-reportable, case-based disease/conditions:
Total cases and deaths previously reported this month on case forms or line lists

	OUT PATIENT CASES	IN-PATIENT CASES	DEATHS
AFP	0	0	0
Cholera	0	0	0
Measles	0	0	0
Meningitis	0	0	0
Neonatal Tetanus	0	0	0
Plague	0	0	0
Viral Hemorrhagic Fever	0	0	0
Diarrhoea with blood	0	0	0

NOTE: Official counts of immediately notified cases come only from case forms or line lists. The counts from the zero-reporting boxes are not official counts.

Analysis, interpretations, comments, and recommendations on both out-patient and in-patient data

Other information:
Look at the trends in the District Analysis Book. Comments on observed trends? Abnormal increase in cases, deaths, or case fatality ratios? Lack of decrease of previous increasing trends? Improving trends?

Conclusions:
Actions taken:
Recommendations:

Sent Report Date 07/10/13 Person DYSON TEMWA

Received Report Date Person

- Record above the total number of cases and total number of deaths for each disease/condition except for TB and leprosy which is reported quarterly on separate form
- Pneumonia and severe pneumonia are defined according to WHO Integrated Management of Childhood Illnesses (IMCI) definitions. Update District Analysis Book if receive late reports from health facilities. If late reports are received from health facilities from previous months, send a separate sheet to the national updating members

MINISTRY OF HEALTH

NATIONAL MALARIA CONTROL PROGRAMME

ITN PROGRAM CLIENT REGISTER

60856

Item: .....

Clinic: ..... District: ..... Month: .....

No.	DATE	NAME OF BENEFICIARY	T/A	VILLAGE/LOCATION	PW	For Child	For Child	BENEFICIARY SIGNATURE	NAME OF STAFF	SIGNATURE
					at 1st Visit	at birth	as 1st vacc.	OR THUMB PRINT		
1										
2										
3										
4										
5										
6										
7										
8										
9										
10										

Overall In-Charge's Name: ..... Title: ..... Date: .....

Signature: .....

Nets are free of charge

Nets will be issued only to those don't own one.
to be completed in triplicate

Annex 5. Status of Stocks

NAME OF HF	DO YOU CURRENTLY HAVE THE FOLLOWING IN STOCK?						
	Registers		IPTp	Vector Control	Case Management		
	LLIN	ANC	SP	LLINs	AL	Quinine Tablets	Quinine IV
Chankhungu	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Mvera Mission	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Mtosa	Yes	Yes	Yes	Yes	Yes	No	Yes
Nkhotakota District Hospital	Yes	Yes	Yes	Yes	Yes	No	No

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