THE UNITED REPUBLIC OF TANZANIA

MINISTRY OF HEALTH AND SOCIAL WELFARE
NATIONAL MALARIA CONTROL PROGRAMME

MALARIA PROGRAMME PERFORMANCE REVIEW TANZANIA MAINLAND

REPORT

National Malaria
Control Programme

April 2012

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ABBREVIATIONS AND ACRONYMS

ACT	Artemisinin based Combination Therapy
ADDOs	Accredited Drug Dispensing Outlets
ALu	Artemether-lumefantrine
AMFm	Affordable Medicines Facility for Malaria
ANC	Antenatal Care
BCC	Behaviour Change Communication
BP	Blood Pressure
CBIS	Community Based Information System
CBO	Community Based Organization
CCA	Community Change Agent
CHMTs	Council Health Management Teams
DHIS2	District Health Information System 2
DOT	Directly Observed Treatment
DSS	Demographic Sentinel Surveillance
EPR	Epidemic Preparedness and Response
FANC	Focused Antenatal Care
FBO	Faith Based Organization
GCLA	Government Chemist Laboratory Agency
HSSP	Health Sector Strategic Plan
IEC	Information, Education and Communication
IMCI	Integrated Management of Childhood Illness
IMVC	Integrated Malaria Vector Control
ITNs	Insecticide Treated Nets
KEMRI	Kenya Medical Research Institute
LGA	Local Government Authority
LLIN	Long Lasting Insecticidal Net
MDAs	Ministry Departments and Agencies
MDDB	Malaria District Database
MDG	Millennium Development Goals
MEEDS	Malaria Epidemic Early Detection System
MEEWS	Malaria Epidemic Early Warning System
MERG	Monitoring and Evaluation Reference Group
MIP	Malaria in Pregnancy
MMR	Maternal Mortality Ratio

MOHSW	Ministry of Health and Social Welfare
MPR	Malaria Programme Review
NBS	National Bureau of Statistics
NEMC	National Environment Management Council
NHP	National Health Policy
NMCP	National Malaria Control Programme
NMMTSP	National Malaria Medium Term Strategic Plan
NSGRP	National Strategy for Growth and Reduction of Poverty
PPA	Public Procurement Act
PSM	Procurement and Supplies Management
RBM	Roll Back Malaria
RCC	Rolling Continuous Channel
RDT	Rapid Diagnostic Tests
RHMTs	Regional Health Management Teams
SAM	Service Availability Mapping
SME	Surveillance, Monitoring and Evaluation
TBS	Tanzania Bureau of Standards
TFDA	Tanzania Food and Drugs Agency
THMIS	Tanzania HIV Malaria Indicator Survey
TIMS	Training Information Management System
TRCS	Tanzania Red Cross Society
TRPI	Tropical Parasite Research Institute
TSPA	Tanzania Service Provision Assessment
TWG	Technical Working Group
U5CC	Under Five Catch up Campaign
UCC	Universal Coverage Campaign
WMD	World Malaria Day

NMCP STAFF

FOREWORD

Malaria is a major public health problem in Tanzania Mainland. It is a leading cause of morbidity and mortality, especially in children under five years of age and pregnant women. The Government of Tanzania through the Ministry of Health and Social Welfare, and its implementing partners, are committed to controlling malaria in the country. The National Malaria Control Programme launched the first Malaria Medium Term Strategic Plan in 2003, which catered for malaria control in the country for the period of 2002 - 2007. The second Malaria Medium Term Strategic Plan covers the period 2008 – 2013. Through these strategic plan documents, evidence based malaria prevention and control strategies were put in force to streamline the implementation in order to reduce its burden.

From the middle of 2010, the Ministry of Health and Social Welfare through the National Malaria Control Programme; in collaboration with development and implementing partners, initiated the efforts to carry out a malaria programme review. This entailed the review of 10 years of malaria control implementation. The Malaria programme review in Tanzania Mainland went through four main stages comprising of planning, internal desk review, field visits and report writing. This report briefly documents the methodology, findings and the logical analysis of key issues. It analyses the impact of the two strategic plans, policy guidelines, implementation mechanisms and the availability of funding.

Some of the major achievements Tanzania Mainland made during this period were the introduction and scaling up of the ownership and use of insecticide treated nets through different initiatives and antimalarial treatment policy changes and implementation, this includes; the introduction of Artemisinin based combination therapy in both public and private sector, the introduction of malaria rapid diagnostic test in the confirmation of malaria especially in rural health facilities, control of malaria vectors through integrated approaches, encouraging the use of indoor residual spraying and destruction of malaria breeding sites through use of biolarvicides. These interventions resulted in increasing the proportion of households that owned and used insecticide treated net, under-fives to 64% and pregnant women to 57%; indoor residual spraying coverage of 92% protecting about 6 million people.

On behalf of the Ministry of Health and Social Welfare, I encourage all stakeholders in health including the development partners and the general population to utilize the review recommendations by translating the action points into implementable strategic interventions that guide the programme towards malaria elimination.

I, therefore thank all the partners who participated in this programme review and the report writing, in particular World Health Organization for their technical support. Last but not least I would like to extend my sincere thanks to World Health Organization and USAID Presidents' Malaria Initiative for funding this process.

Regina L. Kikuli
ACTING PERMANENT SECRETARY

ACKNOWLEDGEMENTS

The Malaria Program Review represents the work and dedication of all people who have been working to fight malaria in Tanzania Mainland for the past ten years. The actual review process in itself was a very huge undertaking by the National Malaria Control Program and its partners as well as internal and external consultants and reviewers. Over the past year and a half, individuals and institutions provided time and financial resources to conduct the program review and to develop this report. The process included reviewing 10 years reports, data and surveys; compiling the information into coherent eight thematic reports; and conducting field visits to validate and better understand the collated information.

The Ministry of Health and Social Welfare wishes to express its sincere gratitude to those individuals and organizations responsible for making this happen. First and foremost I would like to thank the National Malaria Control Program who took the lead in the malaria programme review process. I would also like to thank all the malaria program donors and technical partners including World Health Organization, Malaria Control and Evaluation Partnership in Africa, Presidents' Malaria Initiative, Clinton Foundation, John Hopkins University/COMMIT, Population Services International, John Snow International, Swiss Tropical and Public Health Institute, National Institute of Medical Research, Research Triangle International, JHPIEGO, National Bureau of Statistics, among others, who participated in the review exercise.

I would also like to extend thanks to Regional Medical Officers of Mwanza, Mtwara and Dodoma and the District Medical Officers of Magu, Sengerema, Dodoma Rural, Mpwapwa, Masasi and Mtwara Rural for their support during the field visits. Many thanks go to all the individuals who participated in interviews at the central to community levels. Since it is not easy to mention everyone involved in this exercise, I on behalf of the Ministry of Health and Social Welfare acknowledge the work of every partner and individual who in one way or another contributed to the development and finalization of the malaria program review final report and aide memoire.

This programme review is the "record" and institutional memory of the malaria control program. The report will go far to show the success we have achieved as well as to identify the gaps that still exist for further programming. This report will be used as the basis to develop the next five year Malaria Strategic Plan.

Last but not least, the Ministry of Health and Social Welfare extends its special appreciation to World Health Organization and USAID Presidents' Malaria Initiative for providing the financial assistance for the realization of the programme review.

Dr. Donan W. Mmbando
ACTING CHIEF MEDICAL OFFICER

EXECUTIVE SUMMARY

The Malaria Program Review (MPR) is a periodic joint programme management process for assessing progress and performance of country programmes with the aim of improving performance and refining or redefining the strategic direction and focus. The implementation of National Malaria Medium Term Strategic Plan (2008 – 2013) has scaled up multiple malaria interventions, focusing on malaria elimination. In collaboration with partners, the National Malaria Control program (NMCP) undertook a comprehensive review of the progress and performance of the malaria programme for the period between 2002 and 2010/2011, aimed at identifying achievements, bottlenecks, and best practices to guide the future of malaria control activities in Tanzania Mainland.

This review indicates that over 93% of the Tanzania Mainland population lives in malaria transmission areas, with an average prevalence of 18%, ranging from 1% to 41% (THMIS, 2008). There is high level political will and commitment from the government which provides conducive environment for optimal implementation of malaria control activities. There is strong leadership in the programme which has mobilized considerable resources both technical and financial, from bi-lateral and multi-lateral partners contributing to the health basket fund.

NMCP implements Integrated Malaria Vector Control (IMVC), comprising indoor residual spraying (IRS), use of insecticide treated nets (ITNs) and larviciding, guided by the IMVC guidelines. Tanzania Mainland has achieved universal coverage with LLINs, through under-five catch-up and universal coverage campaigns which were conducted between 2009 and 2011. The proportion of households that owned at least one ITN and the proportion of under-fives using ITNs were both at 64% (TDHS 2009/10), whereas utilization by pregnant women was 57%. In the Lake Zone, where IRS is targeted, coverage was 92%, protecting about 6 million people. Larviciding in Dar es Salaam is ongoing. There is a functional antimalarial and insecticide resistance monitoring system, conducted in collaboration with health research institutions. Malaria prevention and control during pregnancy includes intermittent preventive treatment (IPTp), ITN use and case management of clinical illness. IPTp 2 coverage in 2010 had reached 26% (TDHS 2010).

The country commemorates World Malaria Days annually with high-level political participation. The Communication strategy, M&E Plan as well as diagnosis and treatment guidelines have been developed. Laboratory confirmation of malaria by microscopy had been confined to hospitals and some health centres. Implementation of rapid diagnostic tests (RDTs) expanded malaria diagnosis to 52% of the districts by late 2010. The recommended first line treatment for uncomplicated malaria changed from sulphadoxine-pyrimethamine (SP) to Artemisinin-based combination Therapy (ACT) since 2006, while quinine remains the second line therapy as well as medicine of choice for severe malaria. Affordable Medicines Facility for malaria (AMFm) was introduced in 2010 to improve access to ACTs within the private sector. About 7% of the Tanzania Mainland population live in areas with no or very low malaria transmission, thus are prone to malaria epidemics. Malaria Epidemic Early Detection (MEEDS) exist since 2002 in selected facilities in the epidemic prone areas of the country.

However, there are a few challenges that the program encountered. Some of these were frequent stock-outs of anti-malarial commodities in health facilities due to delays in disbursement of funds coupled with lengthy procurement procedures. Furthermore,

despite the ban of Artemisinin monotherapies in 2006, their presence in drug outlets is a threat to the effectiveness of ACTs. It has also been observed that pregnant women present in the very late trimesters to the Antenatal Clinics (ANC) hence they only receive the first dose of IPTp. Another compounding problem at the ANC is frequent stock outs supplies/ commodities; particularly SP. Lastly with a wide range of implementing partners, technical coordination is a challenge to the programme.

As malaria prevalence declines in Tanzania Mainland, there is need to update the national malaria epidemiological maps to enable targeting of interventions and reflection of impact of interventions. Management skills amongst NMCP staff needs to be strengthened to provide leadership role. Notably the government's financial support to NMCP implemented interventions is comparative low; making the programme reliant on external funding hence sustenance of the achievements and gains made may become a challenge in the future. Inadequate coordination of programme activities is hindered by the lack of an integrated annual operational plan. The emergence of pyrethroid insecticides resistance to malaria vectors species and the potential development of parasite resistance to antimalarials is a threat to the achievements outlined above.

The review team has put forward recommendations and action points which will guide the programme's new strategic orientation towards elimination of malaria in Tanzania Mainland. Among key recommendation are: to strengthen management skills amongst NMCP staff and recruit/assign the missing professionals (M&E expert, Medical entomologist and Statistician); the government should consider increasing its recurrent allocation for malarial control in order to sustain the current gains; finalize a robust LLINs keep-up strategy and mobilize resources to maintain high coverage recently achieved; retarget IRS based on new epidemiological findings after several rounds of spraying including implementation of resistance mitigation strategies before further resistance occurs. Also the NMCP should strengthen and seek for innovative measures in the sensitization of pregnant women in the importance of early ANC attendance.

1.0 INTRODUCTION

1.1 Background

Malaria has been a major cause of illness and death in Tanzania Mainland and therefore, the disease remains a major impediment to social, economic growth and welfare. To reduce the burden of malaria, the United Republic of Tanzania, has undertaken considerable efforts supported by various stakeholders and partners (national and international) to fight against the disease burden.

The National Malaria Control Programme (NMCP) implements the current national Malaria Medium Term Strategic Plan, covering the period of 2008-2013. The goal is to significantly reduce morbidity and mortality due to malaria to a level where it is no longer a major public health problem in the population of Tanzania Mainland, with special attention to the most vulnerable groups: children under five, pregnant women and the poor. To contribute towards achieving this goal, NMCP needs to continue to deploy effective interventions such as use of ACTs for malaria treatment, scaling up of LLINs, Behavioral Change Communication and Surveillance, Monitoring and Evaluation.

Following the deployment of these interventions nationally, it became necessary to evaluate the progress in the implementation and the impact of these interventions on the malaria burden. As we embark on the ambitious goal of taking Tanzania Mainland from malaria control towards elimination, the Ministry of Health and Social Welfare (MOHSW) in collaboration with RBM partners decided to carry out a comprehensive midterm programme review to identify achievements, bottlenecks, and best practices to guide the future of malaria control programming. It is within this backdrop that the malaria programme review (MPR) was conducted to critically assess the context of malaria control and the progress in the implementation of the key programmatic interventions as a way of reviewing their performance for future improvement.

1.2 Malaria Programme Reviews

Malaria programme reviews (MPR) are periodic, collaborative evaluations of national control programmes. Their aim is to improve operational performance and the delivery of malaria control interventions in order to reduce morbidity and mortality. The programme review is conducted in order to identify achievements in outcomes and impacts, best practice and lesson learnt critical issues, problem and cause of problems. Solutions are then be proposed for more effective delivery, resulting in revision of programmes and strengthening of structures, system and capacity to achieve great equity, better coverage, higher quality and more effective delivery of anti-malaria interventions. For the purposes of this review, malaria control programme included the Government and all partners and stakeholders in malaria control at national, sub-national and community levels.

1.3 Justification

The MPR in Tanzania Mainland was justified by the changing malaria epidemiology and as a midterm evaluation of National Malaria Medium Term Strategic Plan 2008-2013. Since 2008, Therefore MPR was set to provide an assessment of the implementation of malaria control interventions to guide or redefine the strategic direction in light of the disease epidemiology and health system structures.

1.4 Objectives of the MPR

- Review the current epidemiology of malaria in Tanzania Mainland.
- Review the structure, organization, and management framework for policy and programme develop within the health system and the national development agenda.
- Assess progress towards achievement of national, regional and global targets.
- Review the current programme performance by intervention thematic areas and by service delivery.
- Define the next step for improving programme performance of redefining the strategic direction and focus, including

revising the policies and strategic plans.
- Disseminate the MPR outputs and translate findings for realigning malaria control strategy in Tanzania Mainland.

1.5 Methodology of the MPR

The programme review was conducted in four phases; Preparatory and Planning, Internal thematic desk reviews, Joint programme field reviews and lastly report writing, dissemination of results, implementation of recommendations.

Review Process, Task Management and Coordination

The entire review process was organized and led by the National Malaria Control Programme (NMCP). A secretariat composed of NMCP staffs, implementing and development partners was selected to plan and oversee implementation processes. Regional and District health teams were fully involved during district field work. To ensure maximum involvement of all key players, a stakeholders' meeting was conducted to convey the importance and rationale for MPR to all organizations working in the field of malaria.

Appointment of Review Coordinator

The review coordinator was selected by the management of the National Malaria Control Programme and tasked to work closely with the Programme Manager in the coordination of day to day activities during the MPR process.

The Internal Review and Thematic Teams

Internal review teams comprising of NMCP staffs, implementing and development partners were formed for each thematic area. Each group had a team leader and eight to twelve members working in the thematic areas. The members were from the MOHSW, academic and research institutions and other partners. Two internal reviewers were hired to facilitate the internal desk review process working closely with the MPR Coordinator and the Programme Manager.

The External Review Teams

The six external reviewers/consultants consisted of invited international experts from WHO, KEMRI, MACEPA and the Programme Manager from the National Malaria Control Programme of Swaziland joined the MPR review team and worked very closely with the Programme Manager, MPR Coordinator and review teams in phases three and four of the review.

Phase I: Preparatory and Planning

Preparatory and Planning Phase was started in June 2010. A proposal was prepared by NMCP in collaboration with malaria control partners and stakeholders. Administratively, the MPR proposal was submitted to the MOHSW for approval and thereafter a financial request was forwarded to the potential funding partners. In July 2010, a consensus building meeting with partners and stakeholders was conducted and all partners committed to participate in the MPR. The meeting was attended by the following malaria stakeholders: NIMR, RTI, IHI, CDC/PMI, CHAI, JHU/COMMIT, PSI, JHU CEP-COMMIT, TRCS, JSI, USAID/PMI, SCPH, MEDA, JHPIEGO, TANAM and WHO.

Three regions were selected to represent the country. These were Mtwara, Mwanza and Dodoma. Within these regions, two districts were selected to be involved in the field component of the review. The basis for selecting the three regions was that they were representative of the malaria epidemiology in the country. Mtwara region represents high endemicity in the south-eastern coast; Mwanza also represents high endemicity in the Lake Zone - north-west Tanzania and Dodoma represents low endemicity on the central arid part of the country.

Phase II: Internal Thematic Desk Review

This phase involved desk review by thematic areas based on programme data, reports, published and grey literature, strategic plans, proposals and so forth. The MPR teams were assigned responsibilities as per terms of reference. Each thematic group had a leader and members. Thematic team leaders were accountable for reporting to the secretariat, writing and submitting a final thematic review report to the internal review consultants. Documents and published literature were reviewed, information from

country databases and country profiles was gathered, mapping of population risk at risk was conducted, estimating burden and projection, policy and management analyses and special studies were observed and documented. This was coupled with individual consultations and regional and district field visits with interviews and observations of individuals from various institutions from the public and private sector.

The amended checklists were prepared to suit the respective context in each thematic area and these were used to collect information from the field to validate information collected from available documents and reports.

The following thematic areas were selected for review:

1. Programme Management
2. Procurement and Supply Management
3. Case Management
4. Malaria In Pregnancy (Prevention and Treatment)
5. Integrated Malaria Vector Control
6. Advocacy, Information, Education Communication and Community Mobilization
7. Epidemiology, Surveillance, Monitoring and Evaluation
8. Epidemic Preparedness and Response

Phase III: Joint Programme Field Review

In this phase, field visits in all the selected 6 districts was conducted between 17th and 30th October 2011. Members from each internal team formed part of the consolidated field teams, which constituted both the internal and external reviewers members. Before the field visits, briefing was done to familiarize the teams with the whole MPR process, field data collection tools were adapted and required reports from the field visits as well as final required reports were discussed. The regions and districts visited were Dodoma (Mpwapwa and Bahi), Mtwara (Mtwara Rural and Masasi) and Mwanza (Magu and Sengerema). The teams were lead by an external evaluator working with three members from NMCP and partners. The teams reported to the Regional Medical Officer and gave an overview of the field visit. Regional Malaria/IMCI Focal Persons joined one team to a district. At the district level, the DHMT selected the health facilities for the field visit, which comprised a district hospital, one health centre, one dispensary and a community around the health centre for focus group discussion session. Summary of the field visit from all the teams was done and debriefing/feedback provided to the RHMT. The three teams converged in Bagamoyo for a two days' workshop to update the thematic reports with findings from the field.

Phase IV: Report Writing and Follow Up

During this phase, each thematic area produced a four page brief from each thematic area was developed to be part of the final MPR report. Aide Memoire was drafted and shared with the Permanent Secretary and Directors of MOHSW. Their comments were incorporated and final Aide Memoire submitted for signature. Briefs from thematic areas were compiled into a draft final report produced. The report was reviewed by partners during a finalization workshop in Bagamoyo from 16th to 18th January 2012. The final draft was edited by a small group comprising NMCP, MACEPA and WHO. This is the product of the edition.

1.6 Outline of the MPR Final Report

This final MPR report is organized to address the following contextual and assessment areas:

- Context of malaria control in Tanzania Mainland. This includes the background, history of malaria control, and the place of malaria control within national health and development agenda.
- Epidemiology of malaria including geographical distribution, population at risk, malaria prevalence, incidence and disease stratification.
- Programme performance by thematic areas.
- Conclusion and recommendations.

2.0 CONTEXT OF MALARIA CONTROL

2.1 Background and Historical Milestones in Malaria Control

While malaria remains a major public health and development challenge in Tanzania Mainland, a unique opportunity exists to scale up malaria-related interventions, strengthen health systems, and make a major effort to roll back malaria in the country. Malaria currently accounts for nearly 12.8 million clinically diagnosed cases per year (Source: THIMS 2010), 40% of outpatient department visits and up to 29% of total deaths, 20% being of maternal origin.

In addition to the direct health impact of malaria, there is also a serious social and economic burden on the communities especially the poorest and those vulnerable individuals. Thus malaria control is addressed, not as a separate, vertical, disease-specific intervention but as part of a health systems strengthening effort to provide holistic services in all facets of care, and as part of a larger community development effort. Through the National Malaria Medium Term Strategic Plan 2008-2013, the Government and many Roll Back Malaria (RBM) partners are committed to increasing coverage of key malaria control interventions and reducing the burden of malaria throughout the country.

The Ministry of Health and Social Welfare's organizational structure comprises of the Minister for Health and Social Welfare, the Deputy Minister for Health and Social Welfare, the Permanent Secretary and the Chief Medical Officer with five directorates. Those directorates include: Preventative Services, Curative Services, Human Resource Development, Policy and Planning, and Administration and Human Resource Management. Government owned facilities at regional and district/council levels are administered through the Prime Minister's Office for the Regional Administration and Local Government (PMORALG).

Malaria on the national development agenda is still the number one killer disease in children aged less than five years and a significant contributor to maternal mortality. It is also the leading disease in terms of health facility attendance, thereby contributing to the heavy workload of the scarce and overstretched human resources for health. In economic terms, the losses incurred by the country as a result of malaria if translated in monetary terms can be to the tune of 121 USD millions, which otherwise, would have gone into other development investments. It thus became mandatory that, an ambitious strategic plan, for the elimination of malaria is conceived to make it a reality.

National and international resolutions for malaria control and elimination was formulated and supported. "The Ministry of Health and Social Welfare came up with the second strategic Plan, (2008-2013) with a focus on "malaria elimination" in line with the global initiative that advocates for a radical scaling up of interventions to achieve the Roll Back Malaria targets of universal coverage of 80% by 2010 and The Millennium Development Goals by 2015."

2.2 Malaria Control within the National Development Agenda

Malaria is the leading disease in terms of health facility attendance, thereby contributing to the heavy workload on the already scarce and overstretched resources. In addition to the direct health impact of malaria, there is also severe social and economic burden on the communities especially the poorest and those most vulnerable individuals.

Tanzania is a signatory of the Abuja Declaration and the Government is committed to implementing the strategies in the Roll Back Malaria Initiative which emphasizes partnership with the private sector, non-governmental organizations, and bilateral/multilateral organizations. Tanzania Mainland's malaria interventions also fit under the larger umbrella of the

United Nations' Millennium Development Goals, especially MDG 6 (to combat HIV/AIDS, Malaria and other diseases), MDG 4 (Reduce Child mortality), MDG 5 (Improve maternal health) and MDG 8 (Develop a global partnership for development and provide access to affordable and essential drugs). Other initiatives include: the Integrated Management of Childhood Illnesses (IMCI) by UNICEF and WHO (1990), the United Nations Call to Universal Access to all key interventions for the three high burden diseases: HIV/AIDS, Tuberculosis and Malaria; and the resolutions of WHO's governing bodies. Malaria as a major contributor to child survival is addressed in all these initiatives.

Malaria control is addressed, not as a separate, vertical, disease-specific intervention but as part of a health systems strengthening effort to provide holistic services in all facets of care, and as part of a larger community-development effort.

2.3 Strategic Government Policies

2.3.1 Vision 2025

In the Tanzania Development Vision 2025, the main objective is the achievement of high-quality livelihood for all Tanzanians. This is expected to be attained through strategies which will ensure the realization of the health services goals. The strategies which are directly related to health include: access to high-quality reproductive health service for all individuals of appropriate ages, reduction in infant and maternal mortality rates by three quarters from current levels, encouraging the participation of community in the delivery of health services and gender equality and empowerment of women in all health parameters.

2.3.2 Millennium Development Goals

Tanzania is a signatory to the UN Millennium Development Goals (MDGs). Malaria is closely linked to the goals associated to the reduction of child mortality by two-thirds, reduction of maternal mortality by three-quarters and to combating HIV/AIDS, malaria and other diseases by controlling them by 2015 and thereafter reversing their spread.

2.3.3 The National Strategy for Growth and Reduction of Poverty (NSGRP II)

The second National Strategy for Growth and Reduction of Poverty (NSGRP II), 2010/11 and 2014/15 builds on the achievements of NSGRP I but with an orientation on growth and enhancement of productivity, with greater alignment of the interventions towards wealth creation as a way to kerb poverty. This orientation thus opens space for realignment of subsequent medium term strategies and calls for more active private sector participation. NSGRP II was informed by changes in the global environment. The recent global financial and economic crises will continue to have ramifications on Tanzania's economy for sometime. In summary NSGRP II focuses on (i) focused and sharper prioritization of interventions in projects and programmes, in key priority growth and poverty reduction sectors (ii) strengthening evidence-based planning and resource allocation in the priority interventions (iii) aligning strategic plans of Ministry Departments and Agencies (MDAs) and LGAs to this strategy (iv) strengthening government's and national implementation capacity (v) scaling up the role and participation of the private sector in priority areas of growth and poverty reduction, (vi) improving human resources capacity, in terms of skills, knowledge, and efficient deployment (vii) fostering changes in mind-set toward hard work, patriotism, and self-reliance; (viii) mainstreaming cross cutting issues in MDAs and LGAs processes, (ix) strengthening the monitoring and reporting systems; and (x) better implementation of core reforms, including further improvement of the public finance management systems.

2.3.4 The Health Sector Strategic Plan III

The focus of the third Health Sector Strategic Plan 2009 – 2015 (HSSP III), is on "Partnership for delivering the Millennium Development Goals". It contributes to Tanzania's efforts to reduce child and maternal mortality and to control important infectious diseases, as well as, in its efforts to improve the environment and access to clean water. The strategy consists of four dimensions; the eleven strategies focus on specific topics in the health service delivery related to diseases and management.

The crosscutting issues elaborate on the approach towards quality, equity, gender and governance. The document explains which types of services are provided in the health sector, and also explains the roles and responsibilities of each level in the health system.

2.3.5 National Health Policy

The National Health Policy has been amended since its inception in 1990 to incorporate the ongoing health sector reform process in the country (MOHSW 2007). It also takes into account emerging and re-emerging diseases and changing landscape in science and technology.

In line with Government Development Vision 2025 goals, the MOHSW will contribute towards the improvement of the health status and life expectancy of the people in Tanzania. This will entail ensuring the delivery of effective, efficient and high-quality curative and preventive health services for all citizens at every level. Success in achieving the objectives of the present health policy will require tangible solutions to the current systematic problems that affect the delivery of health services, notably human resources, which constitute the major problem impeding the implementation of most planned activities. The vision of the Government is to have a healthy society, with improved social wellbeing that will contribute effectively to personal and national development. The mission is to provide basic health services in accordance to geographical conditions, which are of acceptable standards, affordable and sustainable. The health services will focus on those most at risk and will satisfy the needs of the citizens in order to increase the lifespan of all Tanzanians.

Health Sector Administrative Set Up

Tanzania Mainland is divided into 21 administrative Regions. It is further divided into 113 Districts with 133 Council Authorities. Each district is subdivided into Divisions, Wards, Villages and "Vitongoji/ Mitaa." Under the current administrative set-up, provision of health services is divided into 3 levels namely: national, regional and district. Tanzania health system is organized in a referral pyramid, starting from the village level, where there are village health posts; ward level, where there are community dispensaries; divisional level, where there are rural health centres; district level, where there are district or district designated hospitals; regional level, where there are regional hospitals; zonal level, where there are referral/consultant hospitals and national level, where there are national and specialized hospitals.

Health Services System (Structure)

The health system and especially the Governments referral system assumes a pyramidal pattern of a referral system recommended by health planners, that is from dispensary to Consultant Hospital (Better Health In Africa, 1993). The structure of health services at various levels in the country is as follows:

Table 1: Health Services System

Health Services System (Structure)
Village Health Service This is the lowest level of health care delivery in the country. They essentially provide preventive services which can be offered in homes. Usually each village Health post have two village health workers chosen by the village government amongst the villagers and be given a short training before they start providing services.
Dispensary Services This is the second stage of health services. The dispensary caters for between 6,000 and 10,000 people and supervises all the village health posts in its ward.
Health Centre Services A health centre is expected to cater for 50,000 people which is approximately the population of one administrative division.
District Hospitals The district is a very important level in the provision of health services in the country. Each district is supposed to have a district hospital. For those districts which do not have Government normally negotiates with religious organizations to designate voluntary hospitals, and get subventions from the Government to contract terms.
Regional Hospitals Every region is supposed to have a hospital. Regional hospital offer similar services like those at district level, however regional hospitals have specialists in various fields and offer additional services which are not provided at district hospitals.
Referral/Consultant Hospitals This is the highest level of hospital services in the country presently there are four referral hospitals namely, the Muhimbili National Hospital which cater the eastern zone; Kilimanjaro Christian Medical Centre (KCMC) which cater for the northern zone, Bugando Hospital which cater for the western zone; and Mbeya Hospital which serves the southern Highlands.

Source: National Health Policy, 2003

2.3.6 Health Sector Reforms

Health Sector Reforms (HSR) started in 1994 and aims at improvement of access, quality and efficiency of health service delivery. Primary health care was adopted as the most cost-effective strategy to improve health of the people. The major focus of the HSR is therefore on strengthening the district health services, as well reorientation of secondary and tertiary service delivery in hospitals in support of primary health care. The programme also aims at strengthening of support services at the central level, in the MOHSW, it agencies and training institutions. The HSR introduced a programmatic approach, replacing the project approach, in order to create coherence between activities and continuity.

Medium Term Expenditure Framework (MTEF)

Following the introduction of a new budgetary instrument, by the Ministry of Finance in 2001, the Medium Term Expenditure Framework (MTEF) was developed to incorporate the necessary planning and financing of the three year programme of work for the Ministry of Health, for both recurrent and development activities into one document.

MTEF taps all funds appropriated by the government for annual use through treasury. It's not limited to local revenues, however, most of the donor funding are referred to in the development budget, leaving most of Personnel Emolument (PE) and Other Charges (OC) to be largely funded by local revenues. The Government allocation has increased for specific interventions such as larviciding and personnel emoluments. However, the Other Charges for running the programme have diminished over the years.

2.3.7 National Development Plan Tanzania Five Year Development Plan 2011/2012 - 2015/2016, June 2011

Spanning from 2011/12 to 2015/16, the Plan is the formal implementation tool of the country's development agenda, articulated in the Tanzania Development Vision 2025, in particular taking Tanzania to middle income country status and eradicating poverty. In order to fulfill the activities outlined in the priority areas, the Plan identifies a range of strategic activities, the responsible organs and the cost of implementation amounting approximately to TShs. 43.7 trillion over the next five years.

2.4 National Malaria Medium Term Strategic Plan 2008-2013

The National Malaria Control Programme has funding for malaria control activities totaling approximately US$ 402 million dollars for 2008 – 2013 from a number of sources, including the Global Fund to Fight AIDS, Tuberculosis and Malaria, the President's Malaria Initiative, the World Bank, UNICEF, Malaria No More, Swiss Cooperation and the Government of Tanzania. The scale up of the national programme will be geared towards contributing to the achievement of the Millennium Development Goals (MDGs) and Abuja targets of reducing the burden of malaria and to eventually halt transmission of the disease. The main strategic areas that have been identified for the scaling-up of malaria prevention and control interventions include case management, prevention and control of malaria among pregnant women, epidemic preparedness and response, and selective vector control with special emphasis on increasing coverage and use of long lasting insecticidal nets (LLINs) by the population as a whole and targeted application of indoor residual spraying.

In 2002 the first National Malaria Medium Term Strategic Plan (NMMTSP) was developed with the objective of reducing malaria mortality and morbidity in all 21 regions by 25% by 2007 and by 50% by 2010. The second NMMTSP 2008-2013 builds on the major achievements, challenges, and lesson learned during the implementation of the 2002-07 Plan. The goal of the 2008-13 NMMTSP is to reduce the prevalence of malaria by 50% by the end of 2013 from current levels (as determined by indicator values at point of last measurement).

The NMMTSP Coverage Targets by 2013 Are:

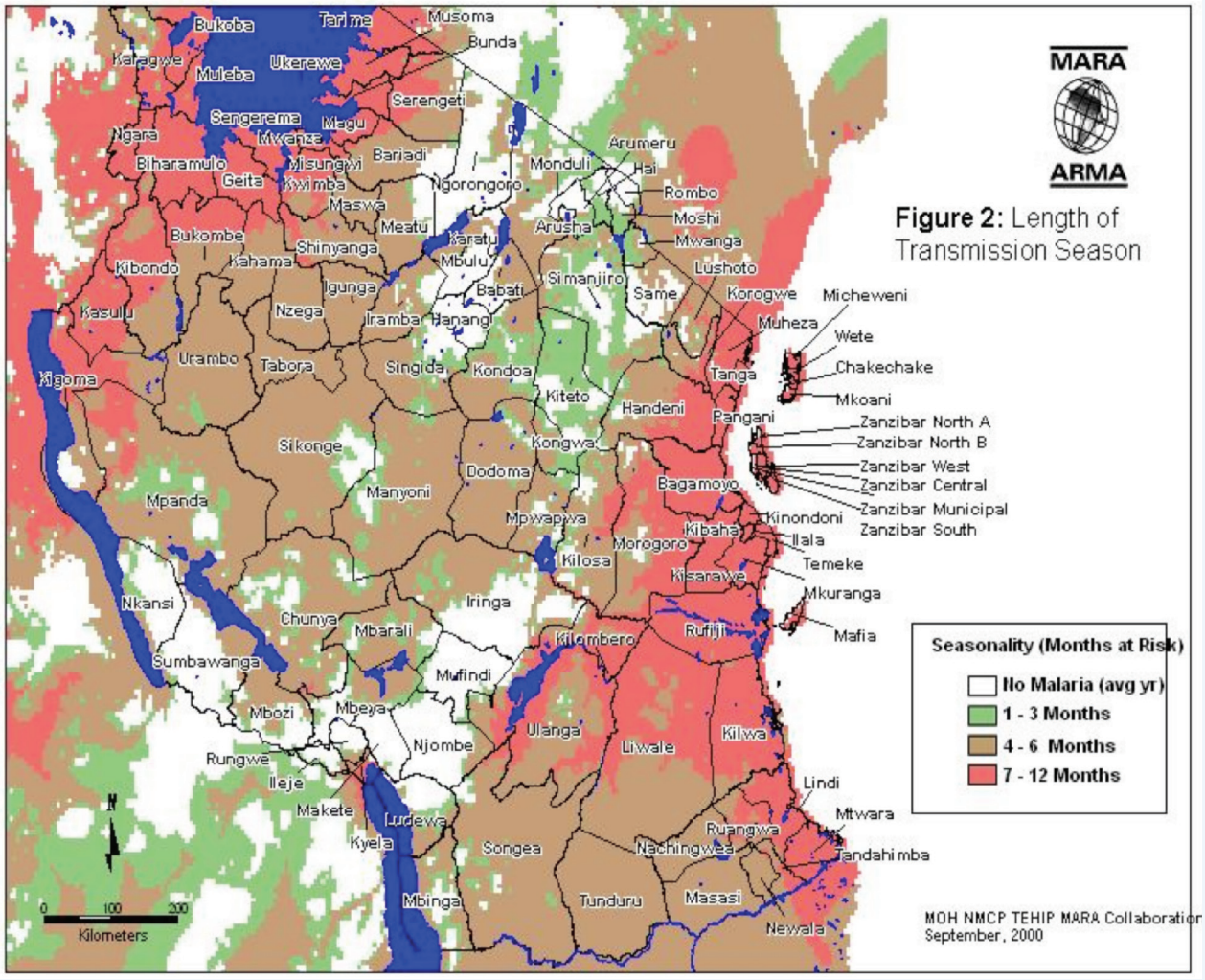
- 80% of malaria patients are diagnosed and treated with effective antimalarial medicines, Artemisinin-based combination therapy (ACT) within 24 hours of the onset of fever;
- 80% of all pregnant women receive 2 or more doses of intermittent preventive treatment
- (IPTp);
- 80% of people in malarious areas are protected through the use of insecticide treated nets
- (ITNs);
- 80% of people in target areas are protected through the indoor residual spraying (IRS);
- Early detection and containment of 80% of malaria epidemics within two weeks from onset.

3.0 EPIDEMIOLOGY

3.1 Geographical Distribution of Malaria

The climatic conditions are favorable for transmission throughout almost the entire country with close to 90% of Tanzania Mainland at risk. Three epidemiological strata exist which is conventionally classified as stable perennial to stable seasonal in over 80% of the country, about 20% of the population lives in unstable malaria transmission areas prone to malaria epidemics, largely in the arid central plateau and fringe highlands. In the coastal fringe, southern lowlands and regions bordering Lake Victoria malaria transmission is stable with very high transmission intensities. Seasonal malaria peaks occur at the end of the rainy season. The southern part of the country has a single main rainy season (March-May) while northern and western experiences bimodal rainfall (November-January and March-May). The geographic distribution of malaria endemicity, based on ecological suitability for vector propagation is presented in figure 1 below.

Figure 1: Length of transmission season, 2000



Source: MOH MARA Maps, 2000

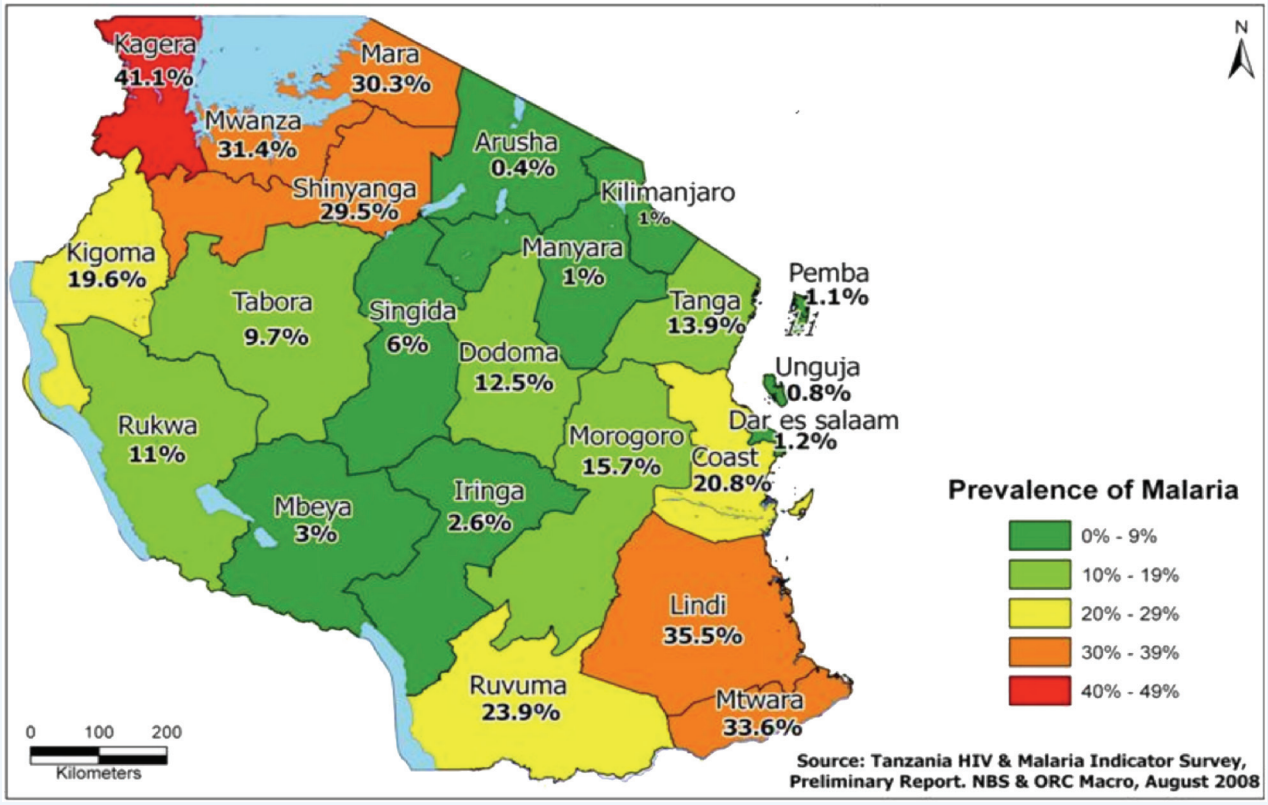
3.2 Population at Risk

Over 93% of the Tanzania Mainland population lives in areas where malaria is transmitted. The most vulnerable groups are children under five and pregnant women. Other groups include people living with HIV/AIDs.

3.3 Stratification and Risk Map

The risk of malaria parasites in under-five children is based on the Tanzania HIV Malaria Indicator Survey (THMIS) 2007/8. These estimates are used to assess transmission intensity of malaria in the country. The prevalence of parasitaemia in under five children was 18% with a marked regional variation that ranged from 1% in Arusha a highland region to 41% in the northwestern region of Kagera. An updated risk will be available in 2012 after the implementation of the planned 2012/12 THMIS.

Figure 2: Regional malaria prevalence of P. falciparum malaria among children 6–59 months, 2007-2008.



Source: 2007–2008 THMIS

3.4 Main Parasites

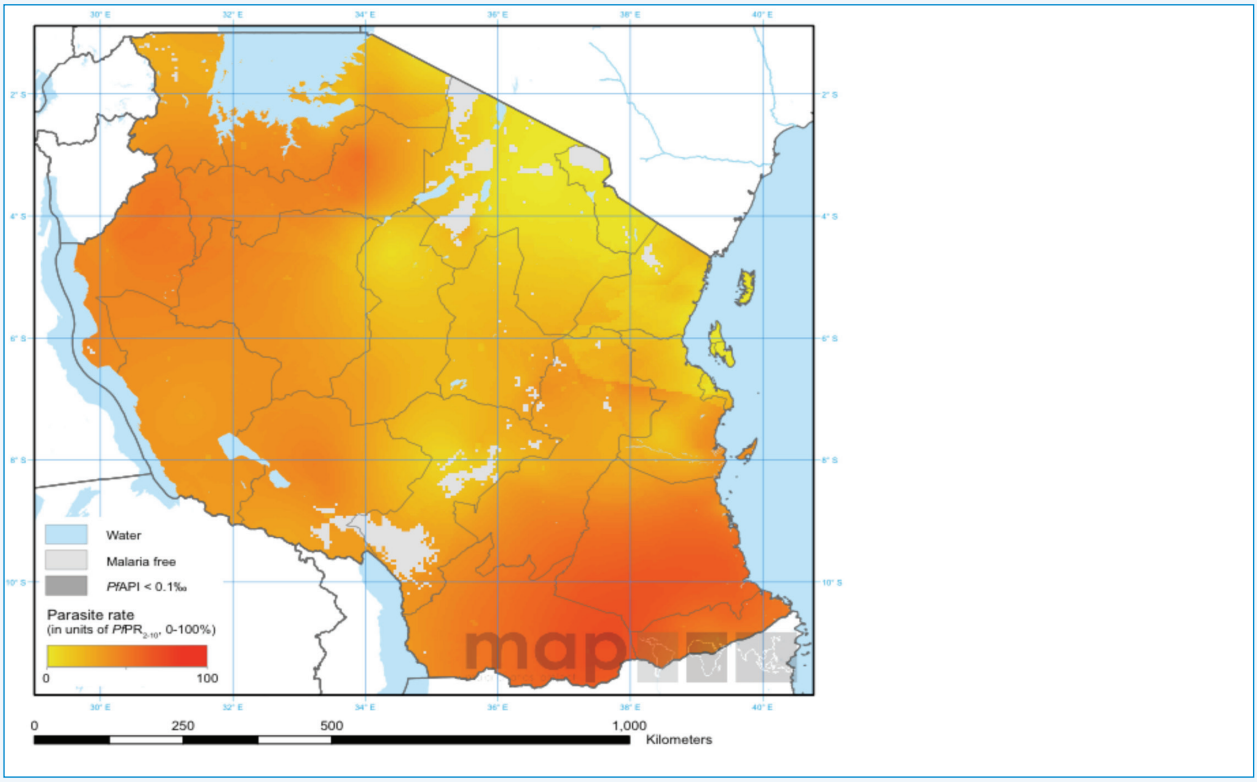
Plasmodium falciparum is the main parasite responsible for 90% of malaria infections in Tanzania Mainland, the other 10% being attributable to *P. malariae*, *P. ovale* and *P. vivax*. Various maps using different methods including GIS based, empirical and non empirical malaria data, were developed from 2000 to reflect malaria transmission and endemicity in Tanzania Mainland[1].

The most recent map was developed in 2007[2] which showed malaria endemicity using *P. falciparum* parasite rate as shown in the Figure 3 below. The map indicates that *P. falciparum* malaria was still highly endemic in most of Tanzania Mainland, particularly in the Southern and Lake Zones. The changing pattern of malaria parasites need to be effectively monitored in Tanzania.

[1]MARA maps (2000)

[2]Hay et al, (2009), A world Malaria Map: Plasmodium falciparum Endemicity in 2007, PLoS Med 6 (3)

Figure 3: Spatial distribution of P. falciparum malaria endemicity, 2007



Source: MARA Maps, 2000

3.5 Malaria Vectors

The principal malaria vectors are *Anopheles gambiae* complex and *Anopheles funestus*. The *Anopheles gambiae* complex is represented by four sibling species namely *An. gambiae ss, An. arabiensis, An. merus*, and *An. quadriannulatus*. However the major malaria vectors in this complex species are *An. gambiae s.s* and *An. arabiensis*[3]. Anopheles mosquitoes have a wide range of breeding sites but the most common are stagnant water pools close to human dwellings. However, from recent unpublished research the vector dynamics are changing and malaria transmission seem to be decreasing. Stratification maps are outdated and may not reflect effects of the recent scaling-up of interventions. The malaria case definition has changed to confirmed cases and this will change the data on malaria burden. HMIS does not provide adequate, reliable and timely (monthly) data to the regional and national levels. As we increase scale of vector control intervention, vigilant monitoring the changing dynamics of malaria vectors is imperative.

[3] Kisinza, W. N., Athman, Y., Masue, D., Sambu, E.,Stanley, G. &, Kabula, B. (2011) Tanzania Malaria Entomological Profile, National Institute for Medical Research, Amani Research Centre, Muheza, Tanzania

3.6 Disease Trends

The most recent draft Annual Health Statistics Abstract report for 2011 show that malaria as still a major public health problem, accounting for 40% of the outpatient cases and ranking[4] number one at the outpatient setting. As the definition of cases reported is not standard, cases are often misclassified posing great challenges in assessing disease trend over time. Also, since quality assurance for laboratory diagnosis is weak, it is not clear what proportion of confirmed cases are true positives, limiting the reliability of the data. However, case studies are available that demonstrate trends of the disease over time. Clinical surveillance on malaria admission in under-five children carried out by Ifakara Health Institute at Ifakara Designated and Bagamoyo District Hospitals show declining malaria cases. Below table 3 shows the number of all out-patient malaria cases as reported in the annual HMIS reports 2008-2010, projected population and the estimated incidence of malaria per 1,000 population. However, the majority of the malaria cases are not parasitologically confirmed.

[4] Annual Health Statistical Tables and Figures, 2009

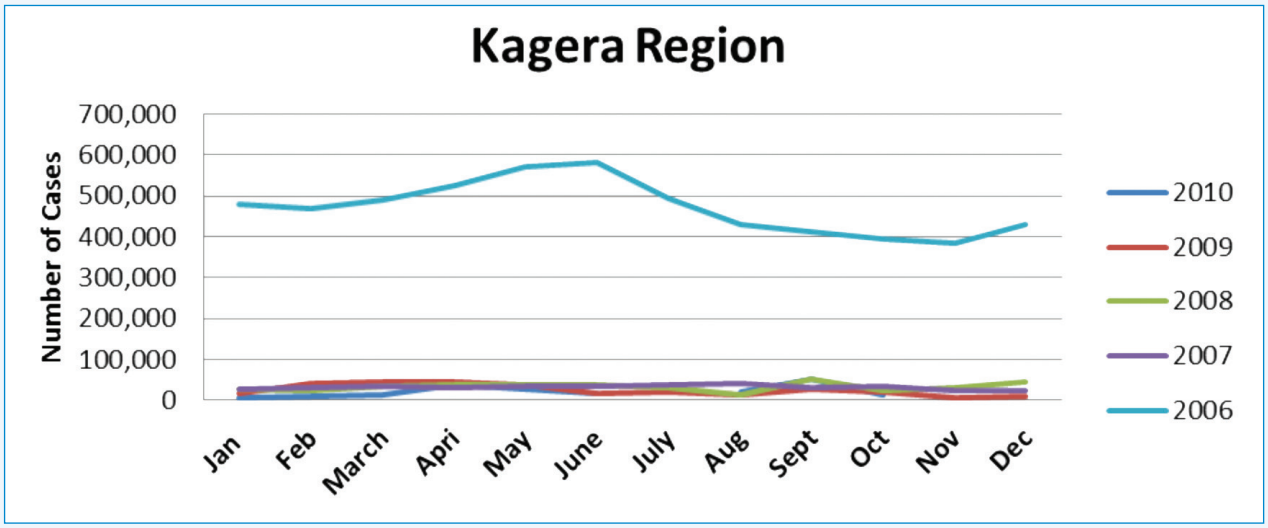
Table 3: Annual OPD malaria cases and incidence per 1000 population, 2004-2010

Year	Malaria Cases			Incidence per 1000 Population	Total OPD Attendance	Population Projection
	Under 5 years	5 years and Above	All Ages			
2004	5,372,569 (18.6%)	6,039,217 (20.9%)	11,411,786 (39.5%)	317	28,868,458	35,944,015
2005	5,192,555 (20.0%)	5,752,809 (22.2%)	10,945,364 (42.1%)	295	25,970,686	37,083,346
2006	5,205,920 (22.6%)	5,099,791 (22.1%)	10,305,711 (44.7%)	269	23,031,470	38,250,927
2007	4,312,771 (21.9%)	5,049,295 (25.7%)	9,362,066 (47.6%)	237	19,674,895	39,446,061
2008	5,631,356 (19.1%)	5,904,228 (20.0%)	11,535,584 (39.1%)	284	18,931,621	40,667,794
2009	6,572,559 (20.5%)	6,179,531 (19.3%)	12,752,090 (39.8%)	304	32,033,299	41,915,880
2010	5,942,529 (16.8%)	6,876,663 (19.5%)	12,819,192 (36.4%)	288	35,285,324	44, 427, 546

Source: HMIS Report 2008-2010

The table 1 above shows that the incidence of malaria ranged from 317/1000 population in 2004 to 237/1000 population in 2007. The percentage of malaria outpatient attendance ranged from 47.6%, in 2007 to 36.4% in 2010. The lowest incidence was observed highest in 2007 (47%) and in 2008 (39.1%). Based on the age groups, the percentage of OPD patients with malaria in children under five years ranged between 18–23% and above five years was 19–26%.

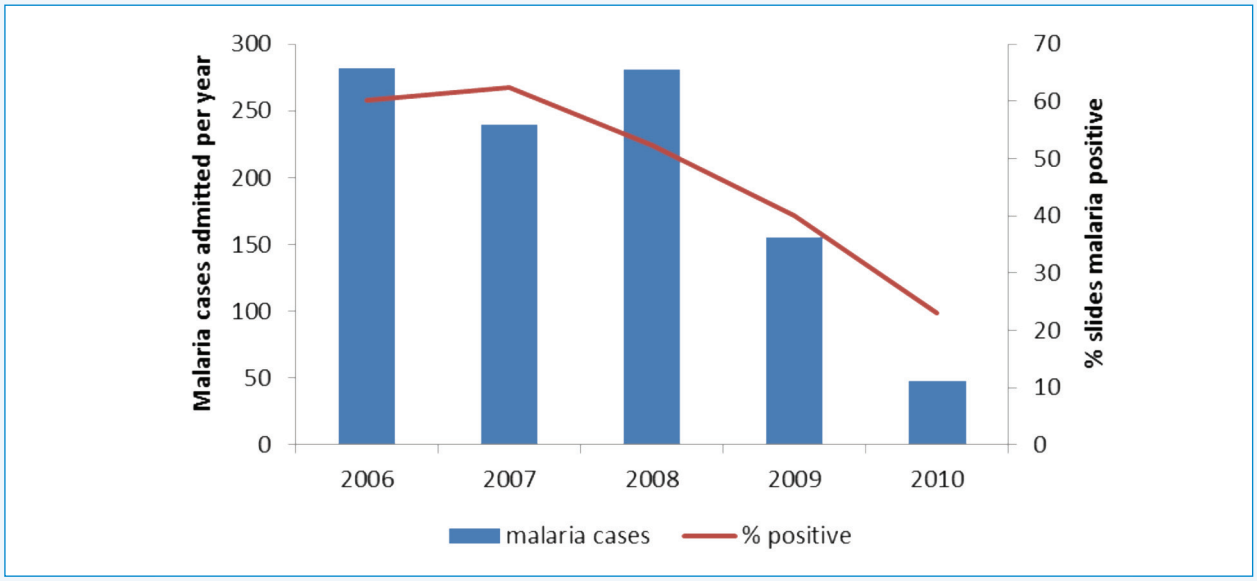
Figure 4: Graph showing number of malaria cases in Kagera region from 2006 to 2010



Source: IDSR Database

The number of malaria cases in figure 4 above was highest in the year 2006, it declined significantly from 2007 to 2010.

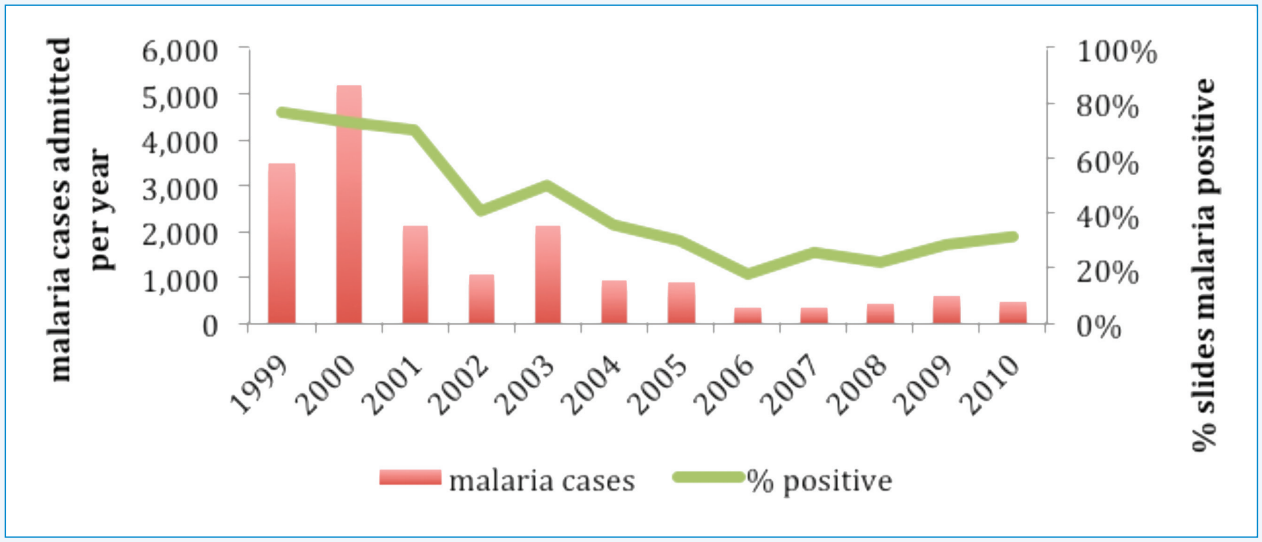
Figure 5: Malaria admissions and blood slide positivity rates among children under-five years of age in Bagamoyo District Hospital: 2006-2010



Source: Impact Evaluation Report, 2011

The Figure 5 above clearly shows a declining trend of malaria admission and slide positivity rate in under five children. Impact Evaluation report show case studies which demonstrate declining trend of malaria admission and blood slide positivity in under-five children at Ifakara Designated and Bagamoyo District hospitals from 1999–2010 and 2006–2010, respectively, as shown in figure 5 and figure 6 below.

Figure 6: Malaria admissions and blood slide positivity rates in children under-five years of age in Ifakara District Designated Hospital: 1999-2010

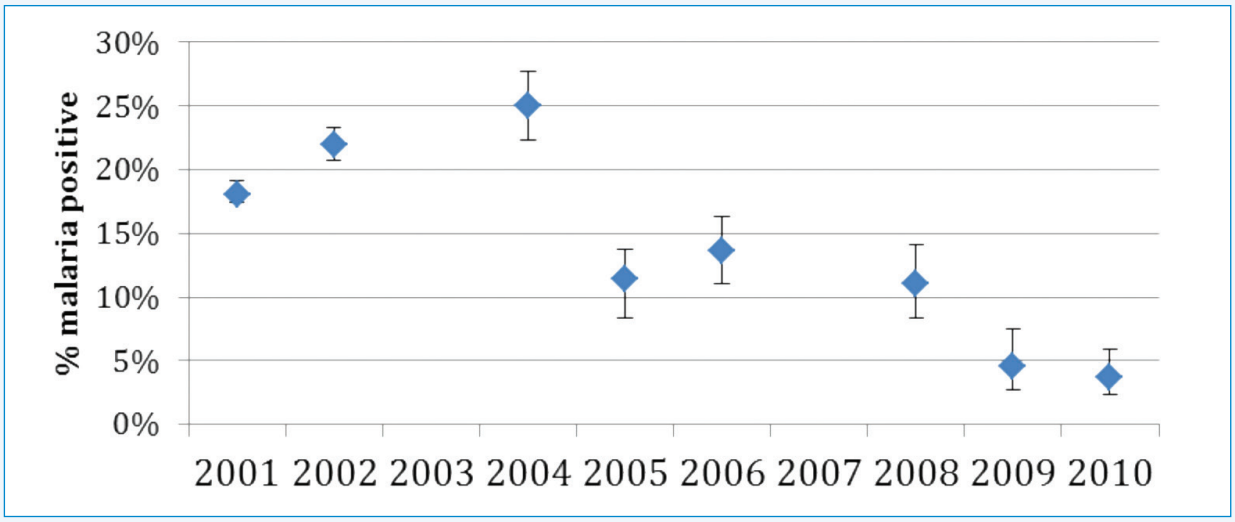


Source: Impact Evaluation Report, 2011

3.6.1 Malaria Parasite Prevalence in the Population from Ifakara DSS

In Ifakara Demographic Sentinel Surveillance (DSS), during the period 2001-2004, all-age malaria prevalence ranged between 17% and 25%. Between 2005 and 2008, prevalence was substantially lower at 11%-14%. Prevalence results for the latest two years are lower still: 4.6% in 2009 and 3.7% in 2010.

Figure 7: Malaria Parasitaemia (all ages) in Ifakara DSS 2001-2010

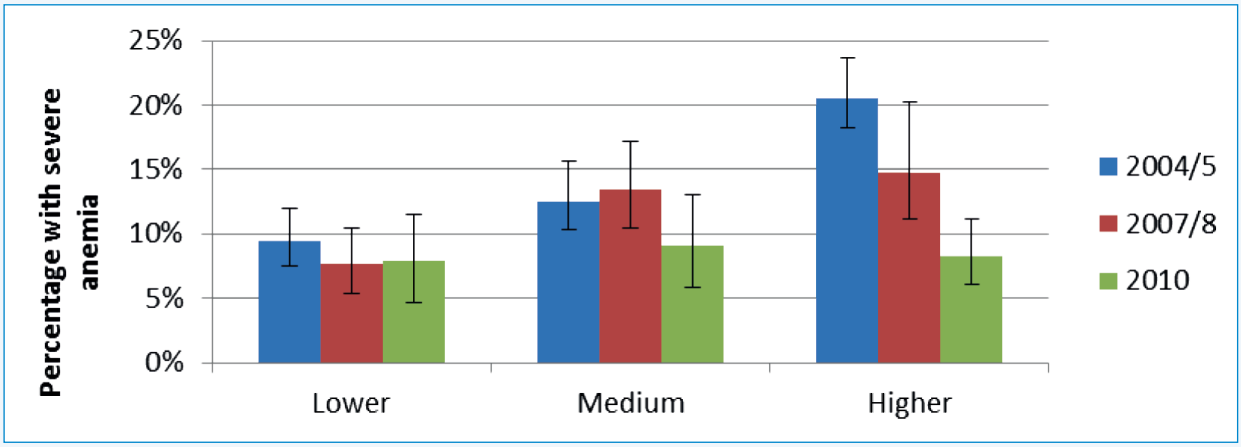


Source: Impact Evaluation Report, 2011 (draft)

3.6.2 Anaemia in Children Under Five Years of Age

Figure 8 below show the prevalence of anaemia in under five children reported from Demographic and Health Surveys (DHS) conducted in 2004/5, 2010 and THMIS in 2007/8. In 2004/5, anaemia (hemoglobin level<8g/dl) prevalence was significantly higher among children (6-23 months) living in "higher risk" regions (20.5%, CI 17.3-24.1%) than in medium (12.6%, CI 10.3-15.3%) or lower risk (9.5%, CI 7.5-12.0%) regions. Reductions in severe anemia were seen in higher malaria risk areas between 2004/5 and 2010, but not in medium or lower risk areas. As a result by 2010, severe anaemia prevalence in higher, medium and lower malaria risk areas was comparable.

Figure 8: Trends in severe anaemia prevalence in children 6-23 months of age, by malaria risk areas, Tanzania Mainland, 2004/05, 2007/08 and 2010.

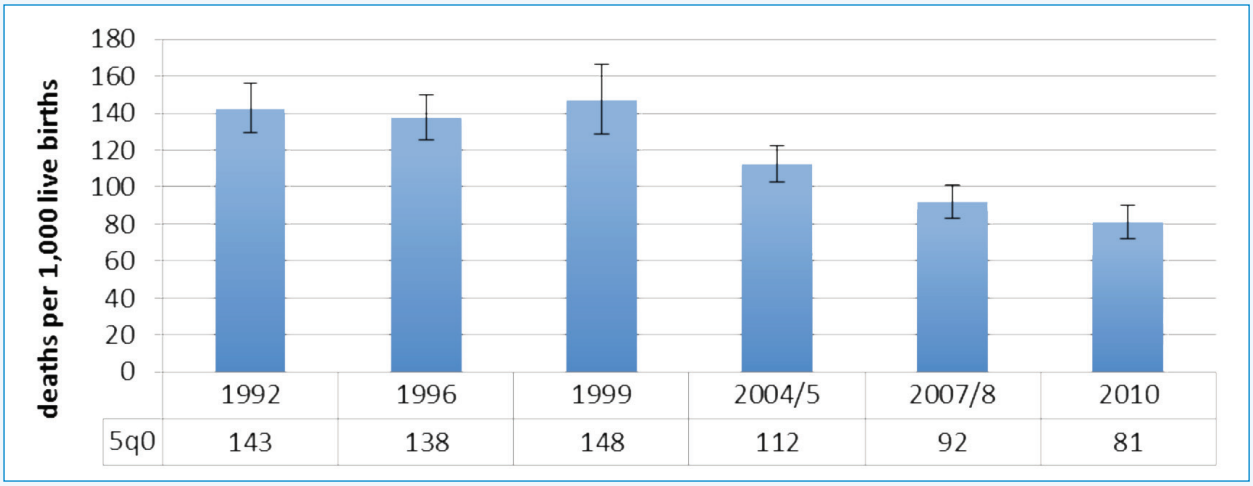


Source: Impact Evaluation Report, 2011

3.6.3 All Cause Mortality

Figure 9 below show a declining trend of all cause mortality in under five children reported from DSS from 1992 to 2010 and THMIS 2007/8. Deaths declined from 148 deaths per 1000 live births in 1999 to 81 deaths per 1000 live births in 2010.

Figure 9: Trend in All-Cause Under-Five Mortality (5q0), Tanzania Mainland, 1992-2010



Source: Impact Evaluation Report, 2011 (draft)

3.7 Conclusions and Recommendations

Conclusion

Ideally the HMIS data are supposed to be utilized at the facility and district including regional and national level. The HMIS has been reviewed recently and is on the rollout process to address the adequacy, accuracy, reliability and timeliness of data.

Recommendations

a) Update the national malaria epidemiological maps to enable targeting of interventions.

b) Collect and analyze more recent data on malaria burden in facilities to inform on impact of malaria interventions.

4.0 PROGRAMME MANAGEMENT

4.1.1 Introduction

At the time of implementing the Accelerated Malaria Plan of Action (1997-2000) and the first generation comprehensive strategic plan developed by the MOHSW in consultation with partners (2002-2007); several key global and regional initiatives were launched towards child survival programmes. These include: the Abuja Declaration (2000), UN Millennium Development Goals (2000), the development and roll out of the Integrated management of Childhood Illnesses (IMCI) by UNICEF and WHO (1990), the United Nations Call to Universal Access of all key interventions for the three high burden diseases that is HIV/AIDS, Tuberculosis and Malaria; and the resolutions of WHO's governing bodies. Malaria as a major contributor to child survival is addressed in all these initiatives.

The efforts in Tanzania to manage febrile illnesses in the context of these overarching global and regional initiatives have been far reaching. Tanzania endorsed the Abuja Declaration, subscribed to the MDGs, adopted the UN's resolutions related to child survival which were developed in the year of review and has adopted strategies to heed to the Call of Universal Access of all key interventions for the three high burden diseases.

IMCI was launched in the 1990's to reduce child mortality in developing countries. A standard set of guidelines were developed for case management of children under-five who present at the first level of health facilities with pneumonia, diarrhea, malaria, measles and malnutrition. Tanzania piloted this intervention in 1997. After a two year evaluation in the two pilot districts, child mortality levels were 13% lower in the IMCI districts in comparison with non-IMCI districts. These gains in child survival were attributed to IMCI and health systems strengthening. During the period that IMCI was being introduced, MOHSW was embarking on a major programme designed to strengthen the health system in Tanzania through the Tanzania Essential Health Project (TEHIP). The project increased financial resources at the district level enhancing their capacity to implement child survival programmes such as IMCI, the adoption of the new malaria treatment policy at the time where Chloroquine was re-placed by Sulfadoxine-pyrimethamine which went hand in hand with a more effective case management of malaria which the NMCP had launched in 2006. Other interventions which were supported at the district level included; targeting ITNs to the most vulnerable groups, national roll out of Vitamin A supplementation and strengthening immunization.

Following the formation of RBM (1998) and the Abuja Declaration (2000), a number of important developments took place in Tanzania Mainland. These include changes in first line therapy for malaria (2001, 2006), the introduction of intermittent preventive treatment for pregnant women (2001), and a national ITN scale-up strategy (2000 onwards) using a mix of social marketing, vouchers for pregnant women and infants, and free ITN distribution. Indoor residual spraying was conducted in 7 districts in Kagera Region during 2009 and 2010.

Table 4: Milestones in the Malaria Control Strategy in Tanzania

Year	Intervention
2000	Social marketing programme for ITNs begins
2001	First line antimalarial therapy change from chloroquine to sulphadoxine-pyrimathamine
2002	Intermittent preventive treatment during pregnancy (IPTp) is introduced
2004	Tanzania National Voucher Scheme (TNVS) begins ITN voucher for pregnant women
2006	ITNs Voucher Scheme for infants
2007	ACTs Implementation
	IRS introduced to control epidemics
2009	Catch Up Campaign to all children under five years of age
	IRS scaled up
2010	Universal LLINs campaign

Source: RBM Progress and Impact Series, 2012

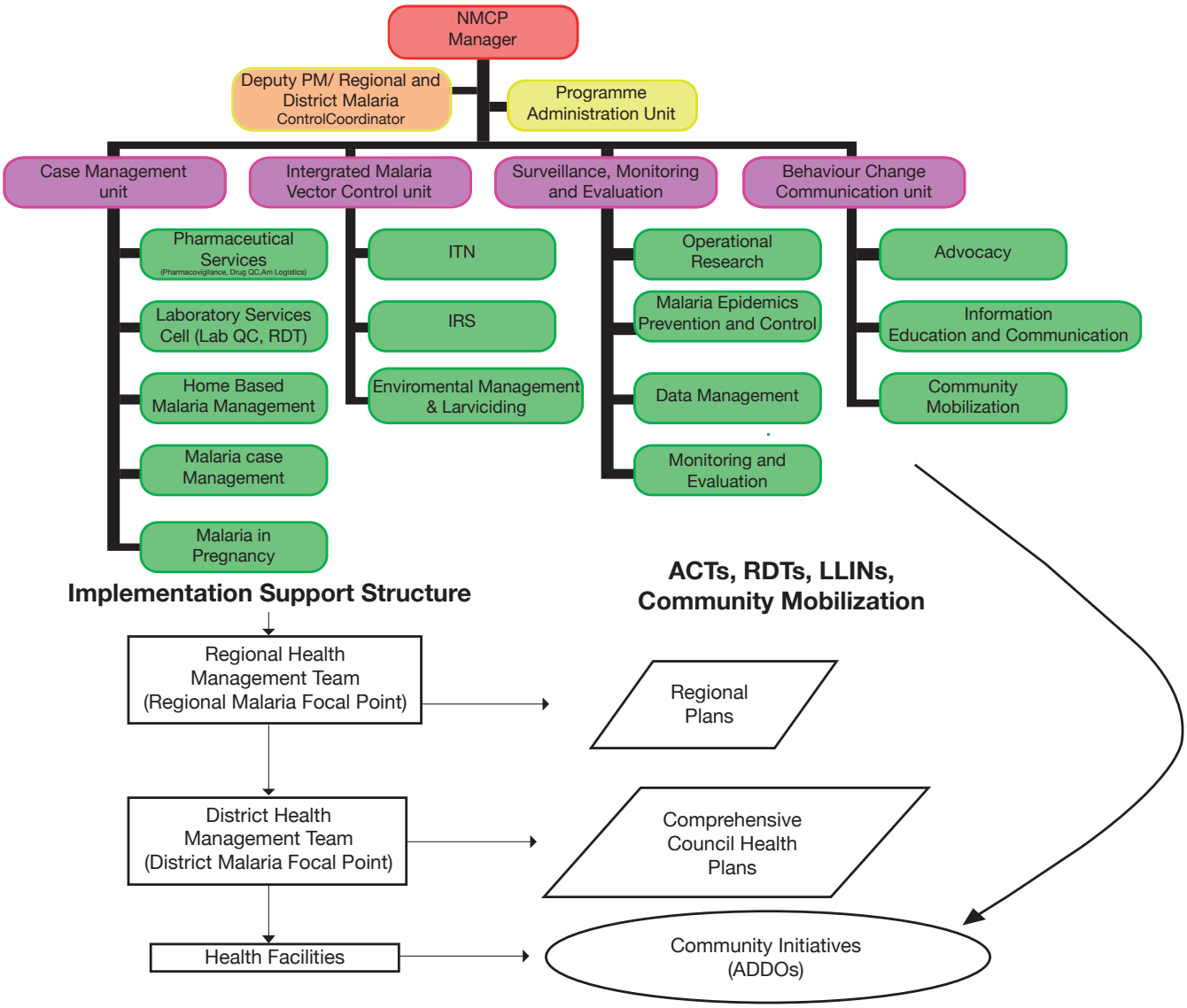
4.1.2 Policy

The National Malaria Control Programme (NMCP) which coordinates the malaria control activities is within the Ministry of Health and Social Welfare's Directorate of Preventive Services. NMCP is responsible for developing policies, designing strategies, developing guidelines, mobilizing funding, facilitating implementation and monitoring progress and evaluating impact of malaria control interventions. The current programme activities are coordinated under the National Malaria Medium Term Strategic Plans 2008-13. NMCP streamlines implementation across national, regional, district and community levels.

4.1.3 Organizational Structure for National Malaria Control Programme

The National Malaria Control Programme was established in 1989 to coordinate malaria control efforts, lead by the Programme Manager, in the country under Epidemiology and Disease Control Unit of the Directorate of Preventive Services in the MOHSW. It is responsible for providing leadership and programme management: comprising formulating policies and guidelines, mobilizing resources, coordinating implementation and monitoring progress and impact. Implementation is guided by the Medium Term Strategic Plan 2008-2013 and annual implementation plans. NMCP has two major strategic units: Case Management and Malaria Prevention; and two supportive units: Programme Administration; and Regional and District Malaria Services Coordination. There are four operational units: Case Management; Integrated Malaria Vector Control; Surveillance and Monitoring; and Behavioural Change Communication, with15 Cells under the units. These units are supported by technical working subcommittees/groups in areas of vector control, case management, behaviour change communication and surveillance/ monitoring and evaluation. Regional and Council Health Management Teams (RHMTs and CHMTs) lead by Regional Medical Officer (RMO) and District Medical Officer (DMO) respectively have direct responsibility for implementation, monitoring, and supervision of malaria interventions in the regions and districts; as well as supervision of regional and district IMCI/Malaria Focal Persons.

Figure 11: Organizational Structure of the Programme



4.1.4 Guidance

There is strong leadership in the programme with well defined reporting lines. Policies, strategies and guidelines have been developed and disseminated to all levels of the health care delivery system. Health workers including at community level have been trained in malaria interventions. NMCP operations are guided by various policy documents: Health Sector Strategic Plan III, the National Development Plan, the National Health Policy and Malaria Medium Term Strategic Plan. NMCP has developed a number of guidelines produced in series overtime. There are 22 series as listed below:

1) National Guidelines for Malaria Diagnosis and Treatment, 2000
2) Diagnosis and Treatment of Malaria: A handbook for Clinicians, 2001
3) Management of Malaria at Health Centres and Dispensary Level, 2001
4) Tiba Sahihi na Huduma ya Uuguzi kwa Wagonjwa wa Malaria, 2001
5) Tiba Sahihi ya Malaria: Mwongozo kwa wahudumu wa Jamii, 2001
6) Huduma ya Uuguzi kwa Wagonjwa wenye Malaria, Mpangilio wa Kuhudumia Wagonjwa wa Dharura na Matibabu yake: Toleo la Tano, 2003
7) Management of Uncomplicated and Severe Malaria: Prescriber's Manual 3rd Edition, 2003
8) Malaria Medium Term Strategic Plan 2002 – 2007

9) The Epidemiological Approach for Planning, Monitoring and Evaluation of Malaria Control Activities, 2005
10) Diagnosis and Treatment of Malaria: Orientation Guide for District trainers, 2005
11) National Guidelines for Malaria Diagnosis and Treatment, 2006
12) Guidelines for the Management of Malaria for Health Service Providers, 2006
13) Mwongozo wa Matibabu ya Malaria, 2006
14) Mafunzo Kuhusu Huduma ya Uuguzi kwa wagonjwa wa Malaria: Mwongozo wa Mwanafunzi, 2007
15) Training Course on Nursing Care on Malaria Patients: Tutor's Guide, 2007
16) Training Course on Nursing Care on Malaria Patients: Learner's Guide, 2007
17) Training Course on Laboratory Diagnosis of Malaria, 2007
18) Mwongozo wa Udhibiti wa Mbu Waenezao Malaria kwa Uwiano, 2008
19) National Guidelines for Integrated Malaria Vector Control, 2008
20) Malaria Medium Term Strategic Plan 2008-2013
21) Communication Strategy for Malaria Control Intervention 2008-2013
22) National Malaria Control Programme M&E Plan 2008 – 2013.

4.1.5 Human Resources, Training and Capacity Development

The programme is staffed with government employees and technical personnel from development partners comprising of a mix of health professionals and expertise. At the national level, NMCP is staffed in accordance to the specific thematic areas comprised in the organogram. The programme has doctors, health officers, public health engineers, laboratory technicians, health administrators, accountants and support staff. The programme has shortage of parasitologists, biostaticians and entomologists. At the regional and district levels the programme is coordinated through Malaria/ IMCI focal persons who are co-opted members of Regional Health Management Teams (RHMTs) and Council Health Management Teams (CHMTs).

4.1.6 Strategic and Annual Planning

NMCP prepared the second Malaria Medium Term Strategic Plan 2008-2013 with a focus on "malaria elimination". This includes implementation of universal access to malaria control interventions, through effective and sustainable collaborative efforts. This is in line with the global initiative that advocates for a radical scaling up of interventions to achieve the Roll Back Malaria targets of universal coverage of 80% by 2010 and UN Millennium Development Goals by 2015. This plan also provides a comprehensive array of activities in diagnosis, treatment and vector control.

4.1.7 Key Players in Malaria Control

There is strong high level political will and commitment from the government. Government institutions that support the programme are: MOHSW, PMOLARG, Ministry of Tourism, Ministry of Education and Vocational Training, Ministry of Agriculture and Tanzania Meteorological Agency. Regulatory authorities are TFDA, NBS, TBS, Government Chemist, TPRI and NEMC among others. Research institutions: NIMR, IHI and training institutions. The programme is also supported by international development partners who provide both technical and financial assistance. Among them are Department for International Development (DFID), Global Fund against AIDS, Tuberculosis and Malaria (GFATM), US President's Malaria Initiative (PMI), Swiss Development Cooperation (SDC), World Bank, UNICEF Clinton Foundation, Malaria Control and Evaluation Partnership in Africa and the World Health Organization. Implementing partners include PSI, MEDA, World Vision Tanzania, RTI, COMMIT, AFRICARE, A to Z, MSH, Red Cross (T), PWC (LFA), JHU/COMMIT, JHPIEGO, JSI, Walter Reed, TANAM, AMREF, Tanscott Associates, Health Focus, JSI, MNM, CBOs and FBOs. A list of RBM partners are detailed in annex 3.

4.1.8 Linkages and Coordination

All players are coordinated through the NMCP. The national level is supposed to have an annual meeting for all stakeholders. At the regional and district level they are coordinated through the Regional and District/Council Health Management Teams respectively through annual evaluation and planning sessions. NMCP and its

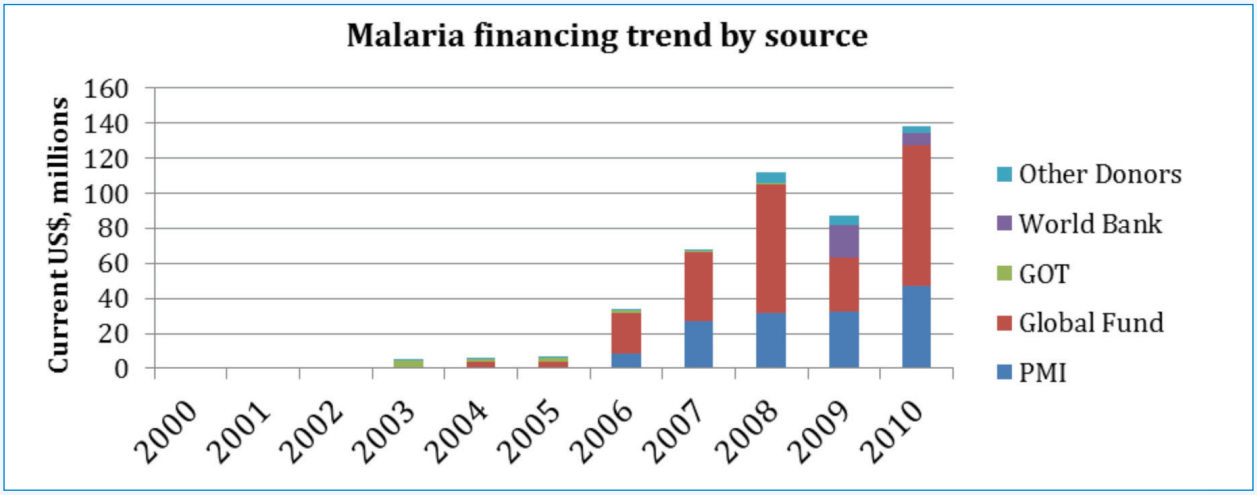
collaborating partners implement the Medium Term Strategic Plans (NMMTSP) developed every five (5) years; the first MTSP was developed for 2002 -2007 and the current one for 2008 -2013. Malaria is linked to other MOHSW directorates: Reproductive and Child Health Sector (malaria in pregnancy and IMCI); M&E Unit (HMIS and IDSR); PMOLARG (Regional and Council Health Teams); Ministry of Tourism, Ministry of Education and Vocational Training, Ministry of Agriculture and Tanzania Meteorological Agency. The regulatory authorities working with NMCP are TFDA, NBS (TDHS and THMIS), TBS, Government Chemist, TRPI and NEMC among others. Research institutions are: NIMR, IHI and Training institutions.

4.1.9 Financing

The programme is funded by the government of Tanzania through the Medium Term Expenditure Framework (MTEF) and is supported by a range of partners who provide both technical and financial assistance. Government contribution to the malaria programme is substantial in terms of funding the health system. The NMCP mobilized considerable financial resources from the President's Malaria Initiative in addition to the Global Fund (Round 1, 4, 7, RCC, 8 and 9), Swiss Tropical Development (SDC) and other bilateral contribution to the health basket fund. This has contributed to the scaling up of malaria prevention and control interventions towards universal coverage.

In common with other countries in the region, a sharp rise in funding for malaria has been a driving force behind policy changes and has permitted a dramatic scale-up of key interventions. Figure 12 summarizes over $450 million in (budgeted) financial support for public malaria interventions from major sources since 2000, showing a 100-fold increase by 2010. The steep increase in malaria funding commenced with receipt of the first Global Fund Grant in 2003, and the pace of funding increased following the advent of PMI support and further Global Fund grants. 55% of the 2000-2010 total funding came from the Global Fund, 32% PMI, 6% World Bank, 4% from other donors and 3% from Government. It should be noted that this estimate of Government contribution excludes indirect expenditure on malaria, such as the substantial portion of front-line health-worker time spent on malaria-related tasks and larviciding initiatives.

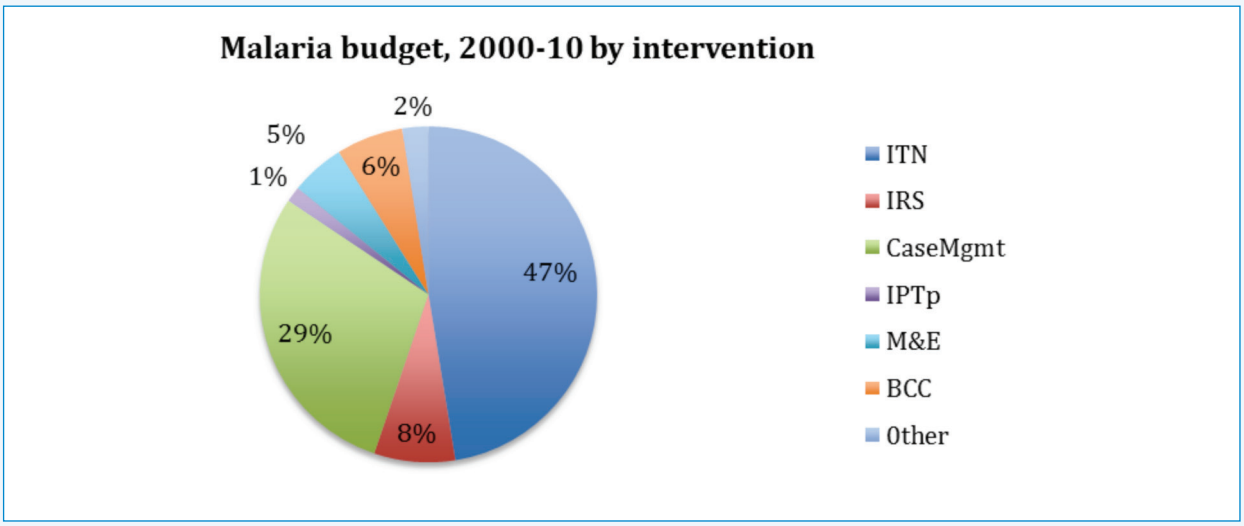
Figure 12: Trend in Funding For Malaria Control by Source, 2000-2010



Source: Impact Evaluation Report, 2011

Disaggregation of total budgeted expenditures over the period 2000-2010 by intervention reveals that the largest shares of funds were dedicated to ITNs and case management, which collectively absorbed two thirds of the total resources available (Figure 13).

Figure 13: Malaria Budget 2000-2010 by Intervention



Source: Impact Evaluation Report, 2011

4.1.10 SWOT Analysis

Strengths	Weaknesses
· Strong and active programme with departments divided into thematic areas. · Established programme under the Ministry which is conspicuous and responsible for coordinating malaria interventions in the country. · Permanent employees with varying expertise lead the programme. · Availability of committed funding sources. · Existence of a malaria policy documents, strategic plan and guidelines per thematic areas. · Availability and strong collaboration with Development and collaborating experienced partners with diverse expertise supporting a number of programme areas. · Trained health workers on malaria prevention and control.	· High dependence on donor funding. · Lack of some technical professions in the programme such as Parasitologists, Entomologists and Biostastician. · National malaria database has diverse data which are not linked or user friendly. · Inadequate data from HMIS in terms of timeliness and completeness. · Health workers' attrition.
Opportunities	**Threats**
· High political commitment to malaria control and malaria is high on health agenda. · Availability of multilateral and bilateral technical and funding partners.	· Uncertainties of continued funding to sustain the gains achieved.

4.1.11 Successes, Best Practices and Facilitating Factors

The programme was established in 1989 to coordinate malaria control efforts. Since then it has been staffed with technical and support personnel. It has effective thematic units ranging from Case Management, Vector Control, IEC/BCC, MIP, Surveillance, Monitoring and Evaluation, and Programme Management. Regions and districts are staffed with Malaria/IMCI focal persons who are employees of regional administration and local government authorities respectively. The programme has a Medium Term Strategic Plan 2008 – 2013 through which all stakeholders and partners are guided in conducting their interventions. Many policy guidelines have been developed and are in place. Total expenditure on malaria prevention and treatment in Tanzania Mainland was estimated in 2000 to amount to $2.2 per capita, absorbing 39% of total health expenditure and 1.1% of GDP.

Apart from human resources, the programme has well equipped office building as the headquarters within the compound of the National Institute for Medical Research. It has a national malaria database/warehouse which houses diverse sources of data and information. Transport system to ease coordination and supervision at the national and regional levels, both in government and partner organization is adequate. 125 out of 156 DMIFPs have motorcycles for coordination. 114 districts are accessible through internet connectivity to enhance communication to the national level. Malaria is implemented in an integrated approach at all levels of health care delivery. All these achievements have been possible due to political commitment of the Government of Tanzania and the multilateral and bilateral development organizations. The availability of Global Fund and PMI sources has been vital to these efforts.

4.1.12 Key Issues and Challenges

NMCP is well set for easy management and operationalization of the program. However, with a wide range of implementing partners, technical coordination is a challenge. Some technical working groups are operating, though sub-optimal. NMCP does not develop one integrated annual operational plan in collaboration with partners resulting in inadequate coordination and monitoring of implementation. Communication and information sharing is inadequate. There are insufficient human resources and an inadequate skill mix in NMCP to assume its leadership role in most technical areas. The government's financial support to NMCP is low, making the programme heavily reliant on external funding. The maintenance of the achievements is fragile in an environment of economic turbulence and uncertain future funding.

4.1.13 Conclusions and Recommendations

Conclusions

National Malaria Control Programme is well set for management and operationalization of the Malaria Medium Term Strategic Plan. There is political will and commitment from the government at the highest level. The programme is supported by development and implementing partners. At the regional and district levels the malaria programme works through the Regional Health Management Teams (RHMTs) and Council Health Management Teams (CHMTs) respectively.

Thus far, Tanzania Mainland has achieved universal coverage with LLINs which marks a milestone true to her slogan "Malaria Haikubaliki" (malaria is not acceptable). There is additional protection to the population at risk in IRS targeted areas. Furthermore, population of Dar es Salaam are benefiting from additional larviciding. Rapid Diagnostic Tests (RDTs) have been scaled-up and foreseen to cover the whole nation. In addition to the public sector distribution, access to ACTs has improved in the private sector through the Affordable Medicine Facility for malaria (AMFm). IEC/BCC has contributed to improved public awareness, enhanced community participation, and increased uptake of malaria control interventions. The scale-up of these interventions have contributed to the change in malaria epidemiology.

Recommendations

a) Strengthen management skills amongst NMCP staff and recruit/assign the missing professionals (M&E expert, Medical entomologist and Statistician/ GIS).
b) The government should consider increasing its recurrent allocation for malarial control in order to sustain the current gains.
c) Advocate the existing coordination mechanism, share and ensure its implementation as one plan.
d) The National Malaria Steering Committee together with the Disease Specific Technical Working Groups under SWAp should provide technical guidance to the National Malaria Control Programme.
e) Develop a comprehensive annual implementation plan to improve partner coordination, joint planning, monitoring and evaluation in line with the "Three Ones"

4.2 PROCUREMENT AND SUPPLY CHAIN MANAGEMENT

4.2.1 Policy

At the present, the procurement of malaria commodities and supplies is centralized involving both pharmaceuticals and non-pharmaceuticals. The MoHSW established the public procurement agent for health commodities and medical equipment. The public procurement agency known as Medical Stores Department (MSD), was established by the Act of Parliament No.13 (1993)[5] with the express objective of furnishing to the nation good quality drugs and medical equipment at competitive prices, made available through approved government and non-government agencies throughout Tanzania Mainland. The Public Procurement Act No.21 of 2004 with its subsequent regulations of 2005 carters for non-pharmaceutical malaria supplies.

4.2.2 Guidance

Through NMCP, the MOHSW has developed a series of guidelines for malaria control, diagnosis and treatment. Malaria Management Guidelines No. 11, 12 and 13 take stock of diagnosis, care and treatment of malaria pharmaceuticals while non pharmaceuticals are provided for in respective documents and the Public Procurement Act.

4.2.3 Registration of Products

All malaria commodities, pharmaceuticals and non-pharmaceutical products procured are registered by Tanzanian Regulatory Authorities (TFDA, TBS, NEMC, GCLA and TPRI). In Tanzania, WHO and WHOPES pre-qualifies antimalarial drugs and pesticides respectively. This is to assure their quality, safety, and efficacy. Public Health Laboratory Authority regulates reagents and devices for diagnosis including malaria rapid diagnostic tests.

4.2.4 Specifications

Specifications of malaria commodities for programme implementation have been set by the programme. NMCP has selected a number of commodities with specifications to be used in the country for both public and private sector. However, in public sector the malaria medicines are selected from the Standard Treatment Guidelines and listed in the National Essential Medicines List for Tanzania (NEMLIT). In this regard the ACT, Artemether/Lumefantrine has been selected as a first line medicine for treatment of uncomplicated malaria in public sector. For management of severe malaria and in patients with contraindication for ACTs, artesunate or quinine injection is used as appropriate.

4.2.5 Quantifications

Even though projected cases of malaria in the NMCP Medium Term Strategic Plan 2008 – 2013 ranges between 17 – 20 million cases of clinical malaria annually; antimalarial forecasting is done by NMCP on annual basis and there is a mid-year review relying on consumption data, morbidity or a combination of both. Quantimed and Pipeline are two software packages used for quantification, estimation of requirement and supply plan. Estimated morbidity data is derived from the Health Management Information System (HMIS) which is produced on annual basis.

4.2.6 Procurement, Storage and Distribution

Procurement of malaria commodities (pharmaceuticals) is done by MSD based on Public Procurement Act, 2004. Medical Stores Department by its establishment law is required to procure, store and distribute health commodities to public health facilities including authorised faith based health facilities. MSD procures and supplies pharmaceutical products at competitive rates as stipulated in procurement procedures. Today, the procurement infrastructure responds to the supply needs of all levels

[5]http//www.msd.or.tz

of Government health facilities and vertical programmes such as Tuberculosis, Leprosy, STI, Reproductive Health, HIV/AIDS and Malaria.

Procurement system for MSD allows addressing the **emergency procurement** when there is national stock-out of malaria commodities. The programme initiates the process after identifying the stock-out status as stipulated in field stock status reports. Subject to the terms of reference in the existing contract, they can be extended while waiting for routine procedures to be finalised. Maximum quantity for emergency procurement system is established in the Public Procurement Act (PPA), 2004. MSD procures and distributes mRDTs, ACTs and other medical supplies. For LLINs the tendering process is done through the Ministerial Tender Board. The contractor is responsible for distribution to the communities. For IRS the contractor is responsible for procurement and spraying.

International procurement agency support is used when needed. However, implementing partners within malaria programme do offer procurement support for ACTs and malaria mRDTs especially when is received from US government. The agent procurement system is made by the donor while the commodity specification is provided by the NMCP.

4.2.7 Storage and Distribution

MSD has a total storage capacity of approximately to 23,000 m^2 with 5,000 m^2 located in the 9 zonal warehouses, 7000 m^2 being central storage capacity and the remaining 11,000 m^2 being rented space from private providers. ACT and other sensitive items are stored in the high value section of the warehouse where custodianship is by the appointed staff.

Distribution and storage of malaria commodities is done at central level. The central store based in Dar es Salaam delivers to the 9 zonal warehouses which thereafter deliver commodities to hospitals. MSD deliver supplies to District Medical Officer's office who is then responsible to deliver the supplies to dispensaries and Health centres is its respective district. All hospitals orders/ purchases and receive their supplies direct from MSD. The ACT and mRDTs have been integrated into the essential medicines distribution system. MSD distributes to about 5,000 health facilities.

4.2.8 Inventory Management

MSD maintains minimum requirements for good storage and distribution practices including: maintaining quality of medicines during transportation, keep medicines from spoiling, minimizing loss, and ensuring security. The MSD has a well established distribution system that adheres to these tenents, including the following documentation: sales invoices, delivery notes, good received notes, and claim and verification forms. All health facilities are required to keep good inventroy system to account for each item received at the facility.

4.2.9 Quality Control

Tanzania has a fully functioning National Drugs Regulatory Authority named Tanzania Food and Drugs Authority (TFDA). TFDA is an executive agency under the Ministry of Health and Social Welfare established by Act of Parliament; the Tanzania Food, Drugs and Cosmetics Act No.1, 2003.

ACTs procured are registered by TFDA and pre-qualified by WHO. At the port of entry ACT are subjected to quality control tests done by TFDA. mRDT lot testing is done by WHO prequalified laboratory abroad as the country has no capacity currently. The Tanzania Bureau of Standards (TBS) tests LLINs locally.

Quality surveillance is done through a post-marketing surveillance system established by TFDA. Drug products are randomly sampled at ports of entry and drug outlets and screened using the Germany Pharma Health Fund (GPHF) Mini Lab Test Kits (stationed at various zone offices). Screening involves visual and physical inspection, simple disintegration test (for solid dosage forms) and Thin Layer Chromatography (TLC). Samples are then sent to TFDA Laboratory for confirmatory testing.

4.2.10 Achievements

The following items have been procured and distributed.

Table 5: Commodities Procured and Distributed

Commodity/Item	July '07 – June '08	July '08 – June '09	July '09 – June '10	July '10 –June '11
National Guidelines/ Policies	2500 copies of the National Guidelines for the Integrated Malaria Vector Control	1380 copies of Malaria Medium-Term Strategic Plan (2008-2013)		1000 copies of the Malaria Control Monitoring and Evaluation Plan
ACTs	16,380,000 treatment doses of ALu		8,303,040 treatment doses of ALu	
mRDTs		21,875 mRDT devices	4,192,700 mRDT devices	
Tanzania National Voucher Scheme	872,633 pregnant women and 441,056 infant vouchers issued	945,892 ITNs distributed to pregnant women and children under five. 662,966 ITNs distributed through TNVS nationally		
LLINs		492,668 LLINs distributed to the under five children through the Catch Up Campaign.	2,940,051 LLINs distributed to all under five children during the Catch Up Campaigns in five regions	17.6m LLINs distributed through Universal Coverage Campaigns nationally.

Note: 2,940,051 LLINs distributed to all under five children during the Catch up Campaign in five regions (982,293 - Mwanza, 508,079 – Mara, 557,517 – Kagera, 530,522 – Tabora and 361,640 – Kigoma).

4.2.11 SWOT analysis

Strengths

- Staff presence in Case Management Unit
- Presence of Public Procurement Act No. 21.
- Malaria Guidelines No. 11, 12 and 13 for pharmaceuticals for diagnosis and treatment.
- Tanzanian Regulatory Authorities for non pharmaceuticals.
- National Essential Medicines List for Tanzania (NEMLIT).
- Quantimed and Pipeline software packages.
- MSD storage capacity of 23,000 m^2 .
- Well established distribution system.
- National Drugs Regulatory Authority.
- Tanzania Bureau of Statistics (TBS).
- Established post-marketing surveillance system.

Weaknesses

- Weak inventory control procedures at zonal warehouses.
- Poor adherence to the procurement plan.
- Occasional delay in disbursement of funds for procurement.
- Inadequate storage space for malaria commodities at MSD.
- Inadequate human resources to manage logistics and procurement demands.
- Low reporting rate, inaccuracy of consumption data for malaria commodities from health facility level.

Opportunities	Threats
• Strengthened Procurement Unit which is being upgraded to a directorate. • Capitalize on the m-health initiatives to address stock availability issues at the facility level to avoid stock-out (these include the SMS for Life reporting system).	• Limited internal financial resources. • Donor dependency.

4.2.12 Success, Best Practices and Facilitating Factors

Procurement and distribution of ACTs to both private and public health facilities ongoing; RDTs to public facilities in 52% of districts, LLINs have been distributed using mass distribution campaigns and routine distribution through the voucher scheme. Insecticides for IRS were delivered to 18 districts in the Lake Zone. Biolarvicides were procured for 3 municipal councils of Dar es Salaam. NMCP developed a fast-tracking system for the malaria data from health facilities to the national level; resourced for financial resources for the malaria commodities including ACT, mRDT and LLINs; integrated ACT and mRDT into essential medicines supply system (ILS); and conducted support supervision to 320 health facilities on quarterly basis.

4.2.13 Key Issues and Challenges

Purchase of malaria commodities do not follow quarterly cycles. There are frequent stock-outs of anti-malarial commodities in health facilities due to delays in disbursement of funds coupled with lengthy procurement procedures. Delivery of commodities is not robust despite the presence of the Integrated Logistics System nationally. Inadequate storage space for malaria commodities results in poor stock management. Lengthy procedures for registration and tax exemption of pharmaceutical products lead to delays in delivery of commodities and supplies.

1. **Reporting and forecasting of commodities**
   - Low rate of reporting malaria consumption data from health facilities and districts as not all facilities and districts report their consumption data.
   - Inaccuracy and late submission of consumption data from health facilities.

2. **Procurement practices**
   - Untimely disbursement of funds from Global Fund, which leads to delays in procurement of commodities resulting in stock-outs of essential drugs.
   - There is only one supplier of ACTs for the public sector, limiting NMCP to depend on the single supplier's delivery schedule and manufacturing capacity. If the supplier is at capacity or has delays in their deliveries due to heightened global demand, there are delays and possible stock-outs at the central level.
   - mRDTs and ACTs are not procured locally, resulting in long lead time.

3. **Storage and distribution practices**
   - Inadequate storage space for malaria commodities at MSD.
   - Poor adherence of health facilities on order placement schedule which may result in stock-out of essential medicines at facilities.

4. **Internal issue**
   - Human resource has been an issue in respect to logistics and procurement issues.

5. **Sustainability**
   - Limited internal financial resources available as a significant percentage of the malaria budget is from donors which is makes the government dependent on donor money for the purchasing of essential medicines and commodities for malaria.

4.2.14 Conclusions and Recommendations

Conclusions

There are frequent stock-outs of anti-malarial commodities in health facilities due to delays in disbursement of funds coupled with lengthy procurement procedures. Delivery of commodities is not robust despite the presence of the Integrated Logistics System nationally. Inadequate storage space for malaria commodities results in poor stock management. Lengthy procedures for registration and tax exemption of pharmaceutical products lead to delays in delivery of commodities and supplies. However, the procurement unit of the MOHSW has been strengthened and is being upgraded into a full directorate.

Recommendations

a) Facilitate refresher trainings on ILS to improve accuracy, increase timely submission and improve the reporting rate of consumption data.
b) Regions and districts to conduct regular supervision on malaria management and review of records at health facilities.
c) There is a need to review the Procurement Act No. 21 of 2004 to give flexibility when it comes to procurement of pharmaceutical so as to reduce lead time where possible.
d) Procure storage space for malaria commodities to encourage multiple stocking where necessary and encourage best practice for stock management.

4.3 INTEGRATED MALARIA VECTOR CONTROL

4.3.1 Introduction

Tanzania Mainland is implementing three interventions for vector control, through Integrated Malaria Vector Control namely: insecticide treated nets (ITN), Indoor Residual Spraying (IRS) and Larviciding in urban settings. Insecticide Treated Nets (ITN) intervention has been universally implemented in all regions since mid-1990s up to 2011, IRS has been progressively scaled up to cover three regions of the Lake Zone of Kagera, Mara and Mwanza regions. Larviciding was conducted in Dar es Salaam City and by 2011, 17 out 90 wards were covered.

As of 2011, universal coverage with LLINs had been achieved nationally. In addition over 6 million people at highest risk were protected by IRS and 20% of the population of Dar es Salaam were benefiting from larviciding. NMCP through partnership with National Institute for Medical Research (NIMR) established entomological surveillance system to monitor vector ecology and development of malaria insecticide resistance.

4.3.2 Policy and Guidance

Malaria vector control interventions planned in the Medium-Term Strategic Plan 2008–2013 are implemented through the guidance of Integrated Malaria Vector Control (IMVC) guidelines. The four interventions highlighted in the Medium-Term Strategic Plan, are Indoor Residual Spraying, use of ITNs (long-lasting insecticide-treated nets {LLINs}), larviciding for malaria vector control in cities/municipals/town councils, and effective environmental management in urban and per-urban areas. Thus far the first three interventions are implemented.

4.3.3 Organizational Structure

At National level, the IMVC Unit consists of ITN, IRS, Environmental Management and Larviciding Cells. The Unit consists of one Epidemiologist (the head of the unit), two Environmental Health Officers, and two Environmental Engineers. Their main role is to coordinate and monitor the implementation of all malaria vector control activities. For effective implementation the Unit is supported by Entomologists from research institutes and technical support from implementing partners. At regional and district levels the activities are coordinated by Regional and District Malaria Focal Persons.

4.3.4 Human Resources, Training and Capacity Development

In 18 IRS districts of the Lake Zone a total of 9,796 persons were trained before IRS operations. Among them 8,486 were IRS spray teams while the remaining 1,310 were district, zonal supervisors and technical staff. Two different trainings were provided for newcomers and staff involved in previous operation (i.e. refresher training). For LLIN and the larviciding, the Village Executive Officers (VEOs), Ward Executive Officers (WEOs) were trained to conduct registration and distribution of LLINs at the community level. Community Owned Resource Person(s) (CORPs) were trained in 53 wards of the Dar es Salaam to implement larviciding.

4.3.5 Annual Planning

There is no comprehensive malaria vector plan in one document but the three different interventions have developed their own implementation plans under the supervision of the NMCP management.

4.3.6 Service Delivery Output and Outcomes

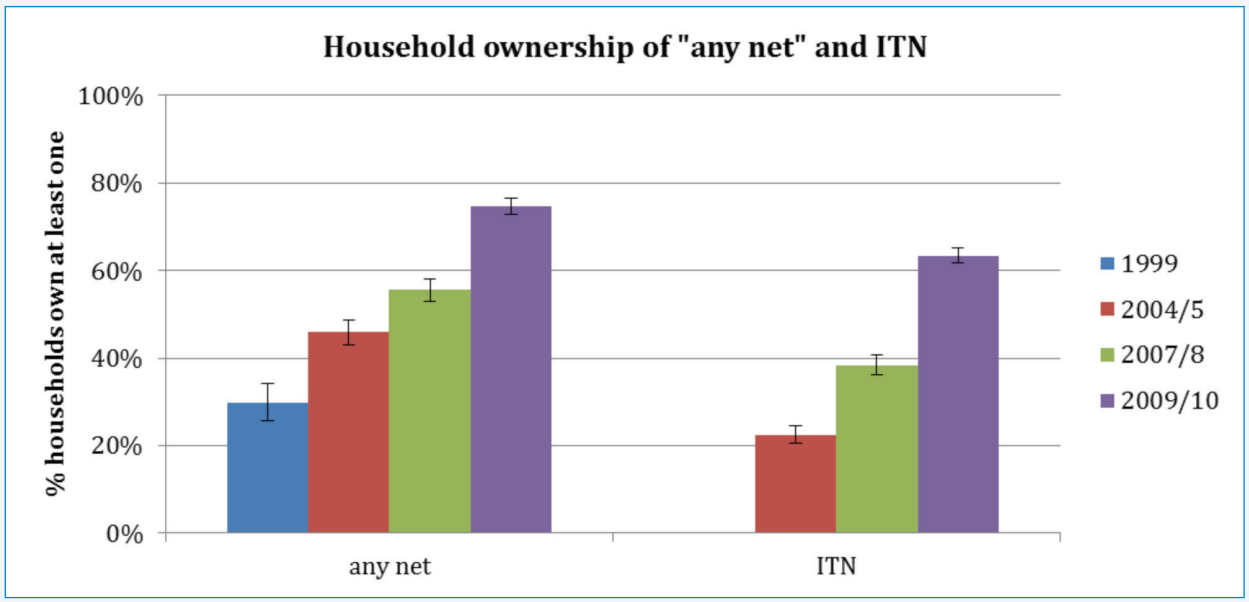
4.3.6.1 Vector control and personal protection through ITNs

From 2002-2009 the main distribution methods used for ITNs was subsidized sales to pregnant women and infants through the Tanzania National Voucher Scheme (TNVS). While this method increased access for the most vulnerable population it proved

insufficient to provide adequate and equitable LLIN coverage, in particular once universal coverage with LLINs became the new WHO recommended policy. Therefore the NMCP conducted LLINs distribution campaign targeting children under-five of age in 2009 where 8.7 million LLINs were distributed through Under Five Catch Campaign. This was followed by universal coverage campaign in 2010/2011 where by 17.6 million LLINs were distributed to all uncovered sleeping spaces not reached by the under five of age. The figure below shows the increase in usage in 2010 as the effect of LLIN children targeting campaign.

The various ITN campaigns over the past ten years have resulted in an increase in household ITN ownership from <10% in 1999 to 63% in 2009/2010. Accompanying this has been an increase in ITN use by children under-five years of age from less than 2% in 1999 to 64% in 2009/10, while ITN use by pregnant women attained 56%. The proportion of households that owned at least one ITN rose from 23% in 2004/5 to 63% in 2009/10 as in the figure below.

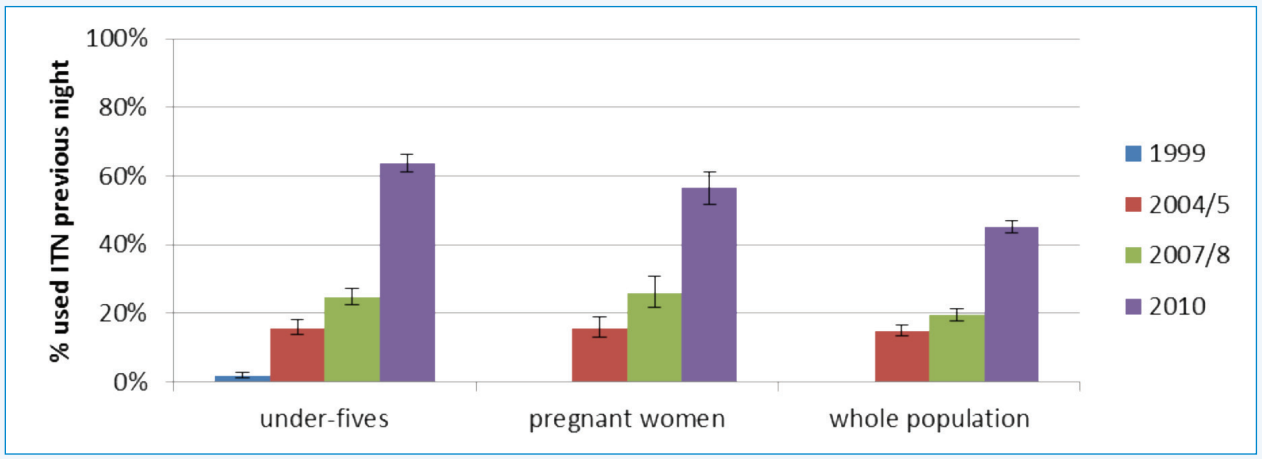
Figure 14: Household Ownership of Any Nets and ITNs, 1999-2010



Source: Impact Evaluation Report, 2011

Use of ITNs for the population as a whole rose threefold from 15% in 2004/5 to 45% in 2009/10.

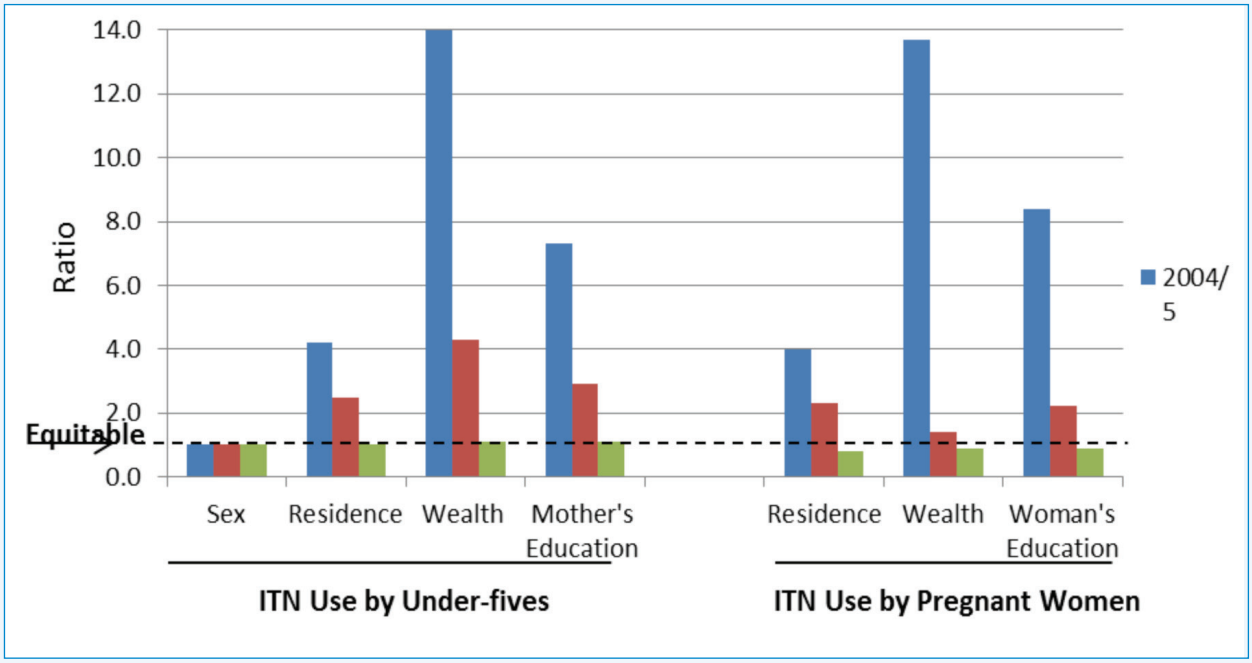
Figure 15: ITN Use among Children Under-Five Years, Pregnant Women and the General Population, 1999-2010



Source: Impact Evaluation Report, 2011

In 2004/5, ITNs were disproportionately owned by those in urban areas, by the least poor, and those with more education. By 2010, those disparities had disappeared.

Figure 16 Increasing Equity Ratios of ITN Coverage, 2004–2010

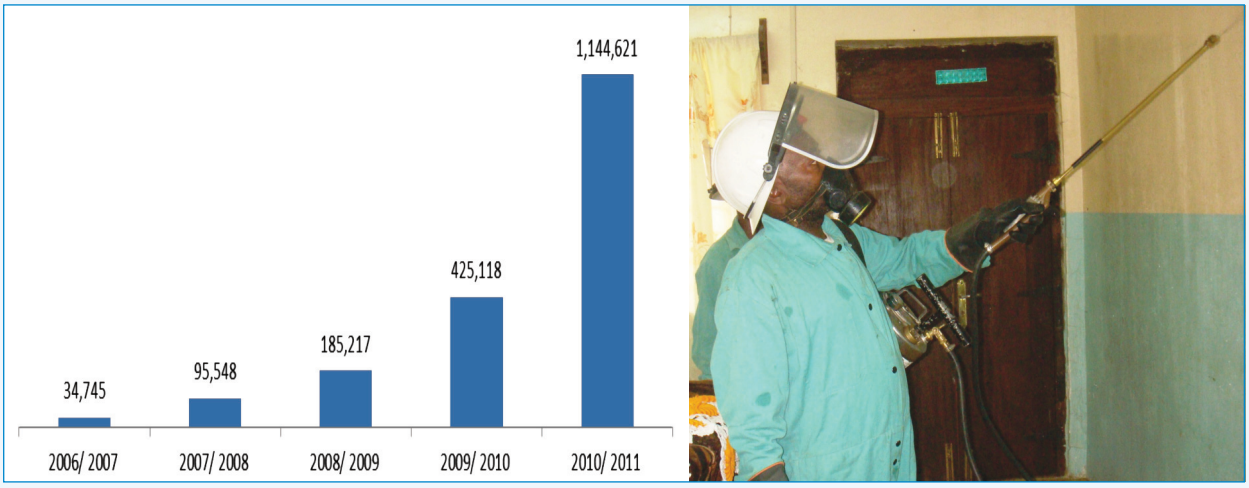


Source: 2004/5 DHS, 2007/8 THMIS, 2010 DHS

4.3.6.2 Vector Control and Personal Protection through IRS

IRS was introduced in 2007 to control malaria outbreaks in malaria unstable areas in the two districts of Muleba and Karagwe in Kagera region. Over the course of this period, IRS operation was scaled up to cover 18 districts of Kagera, Mwanza and Mara in the Lake zone. As of 2010/2011 over 1.2 million (96.2%) house structure were sprayed protecting a population of over 6 million which is approximately 15% of the total Mainland population. The figure below shows the IRS scale up.

Figure 17: Tanzania Mainland IRS Scale Up



Source: RTI Annual Report 2010

4.3.6.3 Vector Control through Larviciding

Larviciding is implemented in Dar es Salaam city. Thus far 17 wards have been covered and over 1.2 million people have been protected.

The programme has set an effective and functional malaria insecticide resistance monitoring system with support from collaborating research institutions which have advanced and high level laboratories and insectaries.

4.3.7 SWOT Analysis

Strengths	Weaknesses
• Universal coverage with LLINs was achieved by October 2011. • "Keep-up" strategy is in place which continues to deliver LLINs to the most vulnerable groups (pregnant women and infants through TNVS. • Achievement and maintenance of universal LLIN coverage has political support from the highest level downwards. • IRS programme is well organized and executes its operations with great efficiency. • Integrated vector control efforts expected to result in a 75% reduction of malaria incidence and specific malaria mortality. • Advanced monitoring programmes for insecticide resistance.	• TNVS is limited to the most vulnerable groups and therefore insufficient to maintain universal coverage. • The standard size of mosquito nets delivered is too small. • TNVS has high distribution cost estimated at 5$ per net. • Lack of epidemiological impact information to refocus ITNs and IRS operations.
Opportunities	**Threats**
• The current funding gap for the "keep-up" strategy provides an opportunity to identify potential donors/ partners and additional community based distribution strategies to compliment the TNVS. • Efficient infrastructure of the IRS programme could be used to support data gathering for impact. • The urban larviciding programme provides an opportunity to reduce culex and aedes mosquitoes and other vector borne diseases. • School based approach of ITN distribution under consideration.	• Inadequate funding leading to ITNs coverage decline as new sleeping spaces are created and nets wear out. • Impeding massive ineffective ITNs distributed through Under-five Catch-up Campaign by the end of 2012. • IRS effectiveness threatened by increasing insecticide resistance.

4.3.8 Key Issues and Challenges

The current 'Keep-Up' strategy through the voucher scheme reaches only a proportion of vulnerable groups. The disposal of old LLINs may cause environmental pollution as they are not biodegradable. The risk of resistance developing to pyrethroid insecticides is particularly high when both in LLINs and IRS rely upon same class of insecticides. In some areas of Tanzania resistance to pyrethroids has been detected. There are no maps on the distribution of malaria vectors to guide targeted application of interventions. There is lack of annual implementation plan for malaria vector control activities and no operational/functional malaria vector subcommittee to advice the programme on issues of vector control. There is insufficient staff in the ITN Cell.

4.3.9 Conclusion and Recommendations

Conclusions

Now that universal coverage has been achieved, routine distributions such as TNVS have to continue to maintain the coverage in particular of the most vulnerable groups

such as infants born after the campaign and pregnant women. Given the fact that not all children and pregnant women have access to the public health system distributing the vouchers and the fact that at 30% of the population do not have children under the age of five; additional routine distribution channel needs to be established. One of the new methods proposed is to distribute LLIN through school children. Even though this proposition will increase access to nets to an estimated 95% overall, 30% of the population do not have school children. Therefore it is recommended that the possibility of another community-based channel be explored for those who do not have access to the routine system: TNVS and schools.

Recommendations

a) Continue to conduct entomological monitoring and update malaria vector distribution maps.
b) Finalize a robust LLINs keep-up strategy and mobilize resources to maintain high coverage recently achieved.
c) Establish a disposal mechanism for old LLINs in collaboration with net manufacturers and stakeholders.
d) Retarget IRS based on new epidemiological findings after several rounds of spraying including implementation of resistance mitigation strategies before further resistance occurs.
e) Expand IRS operation in the high prevalence areas in the southern part of Tanzania Mainland (Lindi, Mtwara and Ruvuma).
f) Undertake entomological and epidemiological investigation to assess the impact of each vector control intervention and their combinations in the Lake Zone and Dar-es-salaam.
g) Rotate IRS insecticide systematically every year before further resistance develops.

4.4 MALARIA DIAGNOSIS AND TREATMENT

4.4.1 Introduction

Prompt and effective treatment of clinical malaria illness is one of the major malaria control strategies in Tanzania Mainland. Malaria remains the most common public health problem in Tanzania Mainland ranking number one in terms of morbidity and mortality. Around 40% of under-five outpatient consultations and inpatient admissions are diagnosed with malaria. However, the condition is over-diagnosed due to reliance on clinical assessment alone. The introduction of malaria rapid diagnostic tests (mRDTs) since 2009 has improved the management of fever and helped make it possible to confirm true malaria in more settings. Increasing malaria parasite resistance against the first line antimalarials, WHO policy guidance and the prospect of external funding support facilitated the adoption of new antimalarial treatment policies, three times between 2001 and 2006.

4.4.2 Policy and Guidance

The antimalarial drug policy is developed by MOHSW through NMCP. In 2001 Tanzania changed the recommended first line treatment for uncomplicated malaria from chloroquine (CQ) to Sulfadoxine-Pyrimethamine (SP) with Amodiaquine as the second line drug. Due to increasing resistance to SP the policy was further changed to Artemisinin based Combination Therapy (ACT) in 2006. Quinine was retained as second line therapy as well as medicine of choice for severe malaria. ACTs are free of charge to children under five and pregnant women.

4.4.3 Organization of Case Management Services

NMCP through the Case Management Unit fulfills the case management tasks with a focus on malaria diagnosis and treatment. Currently, NMCP has diagnosis and treatment guidelines in place. Laboratory confirmation of malaria by microscopy had been confined to hospitals and some health centres, while health workers in dispensaries and the remaining health centres relied upon presumptive diagnosis. To improve access to ACTs in private sector, Affordable Medicines Facility for malaria (AMFm) was introduced in 2010 and has been scaled up nationally in addition to Accredited Drug Distribution Outlets (ADDOs). Health facilities provide services for malaria diagnosis and treatment. The District Medical Officer (DMO) heads the CHMT as in charge of all District/Council Health Services, including health facility-based activities in dispensaries, health centers and hospitals in a given district.

4.4.4 Structure and Functions of Case Management

NMCP Case Management Sub Unit has a unit leader who is a Medical Doctor, and three other health personnel (Medical Officer, Pharmacist, and Laboratory Technologist). Within the NMCP Case Management Unit there is one laboratory specialist who is responsible for dealing with all technical issues of laboratory diagnosis for malaria. The Unit has a section for pharmaceuticals including ADDOs, laboratory diagnosis, malaria case management and malaria in pregnancy. The functions of the sub unit are to provide coordination and technical matters related to case management in the county.

Malaria Case Management Committee

There is a Malaria Case Management sub-committee under National Malaria Steering Committee. It deals with issues concerning malaria diagnosis and treatment and has terms of reference. The new organogram as stipulated is yet to be fully functional. Under the Malaria Case Management subcommittee there are two Technical Working Groups: Drug Management and Malaria Diagnosis. The two working groups are fully functional, at operational level as one group with the historical name of 'ACT Technical Working Group.' By August 2011 a total of 22 meetings of 'ACT Technical Working Group' had taken place, discussing pertinent issues related to case management,

procurement and supply of medicines. These meetings are planned on a monthly basis. National treatment focal persons working on malaria case management are a Pediatrician, Obstetrician, General Physician and Pharmacist not based at NMCP. They are linked through the technical working group dealing with diagnosis and treatment or through special tasks such as change of treatment policy and development of diagnosis and treatment guidelines.

4.4.5 Human Resources, Training and Capacity Development

Routine malaria clinical management activities are carried out at health facilities by health service providers: clinicians (prescribers), nursing staff and laboratory personnel. The in-charge of a health facility is overall in-charge of malaria clinical management activities. Malaria case management use 2-steps cascade training approach. First step is training of district Trainers of Trainees (ToT), and second one is training to field health service providers at the district level. The ToT workshop is facilitated by national trainers and coordinated by central level while the field district trainings are conducted by freshly trained district trainers. District-based trainings develop capacity of service providers.

The ToT rollout training model aim at capacity development at district level. All districts based trainers are able to conduct related future trainings using funds from different sources. All health workers providing clinical services have been trained and re-trained on malaria case management for both uncomplicated and complicated cases. Laboratory technicians have been trained on microscopy based diagnosis. Training of health workers on mRDTs in health facilities that do not have microscopy services has been conducted in 11 regions of the country. NMCP trained laboratory technicians in quality assured laboratory diagnosis. There is a functional central quality assurance assessment of malaria diagnostics and antimalarial drugs.

4.4.6 Annual Planning

There is no general annual operational plan which includes all NMCP activities. However, procurement and supplies of malaria case management programme commodities has annual plan which is conducted in March of every year.

4.4.7 Malaria Diagnosis

Reported malaria cases have been mainly clinical alone, diagnosis based on unspecified fevers. Historically, laboratory confirmation of malaria by microscopy in Tanzania Mainland has been restricted to hospitals, while clinicians in public dispensaries and rural health centers have relied upon clinical diagnosis without confirmation. Malaria RDTs are increasingly becoming a frequent diagnostic tool. The policy now is to test suspected malaria patients through laboratory test, confirmed cases are recorded more than before. Implementation of mRDTs expanded malaria confirmation to 52% of the districts by late 2010.

4.4.8 Malaria Treatment

In the three decades prior to 2001, the recommended first-line treatment for uncomplicated malaria in Tanzania Mainland was chloroquine (CQ) monotherapy. The change was brought by mainly first confirmed cases of *Plasmodium falciparum* chloroquine-resistant reported in 1978. In 2001, Tanzania Mainland formally adopted Sulphadoxine-Pyrimethamine (SP) as first-line treatment for uncomplicated malaria, Amodiaquine as the second-line drug and intravenous quinine for severe malaria. It was recognized from the beginning that resistance to SP would probably emerge rapidly thus SP treatment policy was an interim treatment policy. ACT using Artemether-Lumefantrine (ALu) as first-line therapy implementation commenced from early 2007. In the first two years after the change to ALu, no national level drug stock-out occurred. However, in late 2009 stock-outs started to occur and persisted at different levels through much of 2010 and first half of 2011. Tanzania also devised a mechanism to ensure the availability of subsidized antimalarials in the private sector at an affordable price under the AMFm initiative. This is the approach that NMCP is using to reach the communities as a home based management strategy.

4.4.9 Malaria Prophylaxis

Prevention of malaria through chemoprophylaxis is recommended among healthy, non-immune persons who visit the country and sickle cell patients. In the existing guideline which is under review, chloroquine is recommended medicine for sickle cell patients.

4.4.10 Performance Indicators and Targets

- The proportion of laboratory confirmed malaria cases shall be increased from 20% in 2007 to 80% by 2013.
- The proportion of children under 5 years of age diagnosed with uncomplicated malaria in health facilities who are appropriately managed shall be increased from 64% in 2007 to 80% by 2013.
- The proportion of children under-five years admitted with severe malaria receiving appropriate treatment according to National Guidelines shall be increased from 66% in 2007 to 85% by 2013.
- The proportion of children under 5 years of age with fever receiving appropriate treatment within 24 hours of onset of fever shall be increased from 28% in 2007 to 80% by 2013.

4.4.11 Service Delivery Outputs and Outcomes

The service outcomes are to ensure appropriate malaria diagnosis and treatment provided throughout the country.

- Improvement of anti-malarial drug supply management.
- Appropriate malaria case management provided at health facility level.
- Access to appropriate home-based care in place, with access to early diagnosis and prompt treatment improved at home.
- Improvement of access to early malaria confirmatory diagnosis to facilitate rational use of ACTs.

4.4.12 Successes, Best Practices and Facilitating Factors

Malaria diagnostics has expanded through the introduction of mRDT. Integrated Logistics System is functional and ALu as a 1st line treatment is prescribed in health facilities. AMFm strategy is implemented to increase access and affordability of subsidized ACTs in the private sector. Therapeutic efficacy test to antimalarial is conducted to generate evidence to inform the malaria treatment policy changes.

4.4.13 SWOTS Analysis

Strength	Weakness
• Functional and well engaged Case Management Cell. • Presence of personnel and laboratories for diagnosis and treatment in health facilities. • Availability of updated diagnoiss and treatment guidelines. • Pre-qualified medicines and products available from WHO. • Presence of National ToTs on malaria case management. • Availability of health research institutions. • Increased number of professioanl staff in the NMCP in recent years. • Monitoring of therapeutic efficacy is financed by the government and partners.	• Forecasting and quantification of commodities is not optimal. • IHI yet to be pre-qualified for QA of RDTs. • Roll out of new diagnosis and case management guidelines will be done in phases,which may delay implementation. • Difficulty for NMCP to acquire data from the research institutions. • There is lack of research forum in the country for malaria research leading to poor coordination.
Opportunities	**Threat**
• Existence of research institutions to conduct malaria research studies to guide policy decisions.	• Development of antimalarial drugs resistance

4.4.14 Key Issues and Challenges

There are problems with the procurement and supply chain management leading to inconsistent supply of mainly ACTs and mRDT at health facilities. Reporting of malaria cases need to be strengthened (completeness, accuracy and timeliness). Pharmacovigilance is weak or nonexistent in some districts. There is also lack of malaria treatment guidelines/algorithms in some health facilities. The implementation of case management has been hampered by other issues as well such as delayed treatment seeking behaviour and lack of appropriate messages on case management at the community level. ADDO's expansion is currently in 30% of the districts.

Laboratory diagnosis of malaria is constrained by inadequate number of trained staff, limited availability of mRDTs, inadequate quality assurance/quality control system, and non-adherence to laboratory results by clinicians. Despite the ban of Artemisinin monotherapies in 2006, its presence in drug outlets is a threat to the effectiveness of ACTs.

Currently, there is no household-based system for malaria testing and diagnosis.

4.4.15 Conclusion and Recommendations

Conclusions

There is significant decline in all-cause under-five mortality which occurred in Tanzania Mainland between 1999 and 2010 surveys. Fever used as a proxy indicator for malaria in children under five years of age in the community, showed significant change of malaria morbidity between 1999 and 2007/8, the proportion of children with fever in the two weeks before survey fell by more than a third. At community level, prompt access to first line anti-malaria treatment within 24 hours in children with fever has increased only slightly comparing 2010 to 2004/5. AMFm subsidy initiative for increased access to quality affordable ACT is expected to improve this indicator in the future.

Recommendations

a) Enforce the policy on banning of Artemisinin monotherapies in the country.
b) Improve malaria diagnosis by scaling up rapid diagnostic tests (mRDTs) coverage.
c) Institute quality assurance of malaria diagnosis for microscopy and mRDTs to boost clinician confidence in laboratory results.
d) Strengthen the linkage with other community-based health programmes to implement a package on household based management of malaria.
e) Strengthen pharmacovigilance system by strengthening recording and reporting of adverse events including zero reporting.
f) Address bottle necks associated with procurement and supply chain management to avoid stock-outs at all levels.
g) Intensify BCC/IEC to enhanced early treatment seeking behaviour and compliance to test results by patients and clinicians.
h) Strengthen supportive supervision of health care workers with focus on compilation and transmission of technical reports, availability of pharmaceutical supplies and compliance to malaria diagnostics test results.
i) Improve distribution of malaria diagnosis and treatment guidelines/algorithms to health facilities.
j) Strengthen the linkage with other community-based health programs to implement a package on community based management of malaria in conjunction with the Accredited Drug Outlets (ADDOs) approach.

4.5 INFORMATION EDUCATION AND COMMUNICATION/BEHAVIOUR CHANGE COMMUNICATION

4.5.1 Introduction

The Information, Education and Communication/Behavior Change Communication (IEC/BCC) component includes advocacy and community social mobilization. This is an important supportive strategy in the implementation of specific malaria control interventions, such as malaria case management, prevention of malaria in pregnancy and malaria prevention through vector control methods. The implementation of this strategy has realized some achievements including public awareness, development of a malaria communication strategy, enhanced community participation and higher uptake of malaria control interventions. There is a functional IEC/BCC Working Group at the national level. The IEC/BCC Unit coordinates 20 malaria-implementing partners working in IEC/BCC.

On the advocacy front, the country commemorates the Africa Malaria Day/World Malaria Day annually with high level political participation. Also on the advocacy front, there is a very high political commitment among national and local level leaders. The President and Prime Minister were involved in a number of malaria activities. The President is the Founder Chair of African Leaders Malaria Alliance (ALMA) and in 2010 made three national public appearances as guest of honor for malaria activities. The NMCP is overseeing a large national social mobilization effort that is reacing down to the community level, promoting malaria prevention, treatment and control. This is reinforced by a large media presence utilizing radio, television and print.

4.5.2 Policy and Guidance

Malaria IEC/BCC activities are guided by two interrelated policies and operational documents: the Malaria Medium Term Strategic Plan 2008-2013 as overall guide for all malaria interventions; Communication Strategy for Malaria Control Interventions 2008-2013 that sets out the goals, objectives and targets for the IEC, Advocacy and Community component for Tanzania Mainland.

4.5.3 Organization

Malaria IEC/BCC activities are coordinated at the national level by NMCP through the IEC/BCC Unit. This Unit works with more than 20 partners through different mechanisms. The BCC Technical Working Group oversees all activities concerning advocacy, IEC/BCC and community mobilization. It also reviews and approves malaria IEC/BCC materials in Tanzania Mainland. Members of the BCC Technical Working Group comprise implementing partners, IEC/BCC Unit, other NMCP Heads of Cells and other related MOHSW sections such as Health Education Unit, Communication Unit and Reproductive and Child Health Sector (RCHS). At the regional and district, the core BCC activities are planned and implemented through the Regional and District Malaria IMCI Focal Persons (R/DMIFP). The DMIFP are responsible the malaria activities within their district. They coordinate with the Local Government Authority, partners, and communities.

4.5.4 Human Resources, Training and Capacity Development

The IEC/BCC Unit has qualified IEC/BCC staffs that work with committed implementing partners. The unit coordinates all BCC activities implemented by partners and in regions and districts. At the regions and district the Malaria focal persons coordinate all BCC activities that are done at their areas. Both regional and District Malaria Focal Person have been trained on Behavior Change Communication for malaria intervention and were oriented on Malaria Communication Strategy that, a guide that facilitate them to effectively coordinate BCC activities at the regional and district levels.

4.5.5 Annual Planning

The IEC/BCC Cell coordinates and harmonizes malaria BCC activities through

setting the overall goals and objectives for malaria prevention, treatment and control. Based on these goals, objectives and needs, the partners develop annual implementation plans which are harmonize to effectively allocate resources. The outcome of this process is the annual harmonization matrix that shows detailed activities by each partner. It is through this harmonization matrix that the IEC/BCC Cell coordinates and monitors the work of its partners on an annual basis. The IEC/BCC Cell ensures at this stage that the guiding documents such as the Malaria Medium Term Strategic Plan and Malaria Communication Strategy are followed.

4.5.6 Performance Indicators and Targets

In order to measure success of malaria IEC/BCC activities, NMCP has developed a set of performance indicators and targets in the Malaria Medium Term Strategic Plan that have been included in the Malaria Communication Strategy. Below are set of performance and target indicators.

1. The five year communication strategy will be institutionalized and operationalized to effectively guide all malaria BCC/IEC activities by 2013.

2. Sustained IEC/BCC messages on malaria interventions are given to the public by 2013.

3. Capacity building on development of effective BCC messages on malaria control in the regions and districts through RMIFP and DMIFP refresher training.

4. At least 50% of malaria interventions on prevention are known by 80% of the target population by 2013.

5. At least 80% of population is aware of first line anti-malaria drug by 2013.

6. At least 30% of villages in Tanzania Mainland have CHWs delivering malaria interventions promotional services by 2013.

4.5.7 Service Delivery Outputs and Outcomes

In order to achieve the set targets, comprehensive malaria IEC/BCC programme has been implemented that works at the national level, through the health facilities and at the community and household level. High-level national events such as World Malaria Day, exhibitions and special days such as *Nane Nane* and *Saba Saba* are used to highlight malaria control activities and profile them to the general public. At health facilities providers are trained on interpersonal communication and counseling and provided job aids. Providers give talks and counsel patients. Health facilities are also used as a key point to distribute IEC materials to clients.

At the communality level DMIFP and partners create awareness on malaria prevention and control and mobilize households to take the necessary action to prevent malaria through the consistent use of ITNs/LLINs, environmental management, Indoor Residual Spraying, Intermittent Preventive Treatment in pregnancy, voucher scheme and treatment through ensuring people recognize the signs of malaria, get tested and take ACT dose fully.

Activities include Community Health Workers giving group talks, house visits, school campaigns, Mobile Video Units and road-shows among others. At the ward/village level activities are through volunteers (CCAs, IRS volunteers, Community Focal people and Red Cross Hang Up Volunteers). Through these activities awareness and demand for services such as malaria testing and treatment and products is created. The involvement of district level malaria focal people and community based organizations has helped to create a sense of ownership of malaria IEC/BCC activities. Also, mass media especially through national and regional radio stations and television have been used to create public awareness on malaria prevention, treatment and control activities. These have been invaluable channels for communicating malaria messages.

4.5.8 SWOT Analysis

Strengths	Weakness
• Communication Strategy in place and adopted by all stakeholders at all levels. • More than 80% of the population is aware of malaria interventions. • A strong collaboration between NMCP and implementing partners. • Functioning BCC Working Group which meets regularly to set BCC agenda and review the IEC/BCC materials. • Trained Community Volunteers (CCAs, Red Cross Volunteers and Focal Parents) at ward and community levels. • Local civil society involved in sensitizing and mobilizing communities. • Partners developed harmonized action plans for media and advocacy. • Improved partner and community engagement in malaria control strategies. • Commemoration of World Malaria Day every year. • Incorporated IEC/BCC targets in the reporting and supervision tool for NMCP. • Community engagement in malaria prevention activities. • Inter-ministerial and programme collaboration.	• There is insufficient coordination between IEC/BCC programmes and the technical malaria programmes on how best IEC/BCC Unit can support the thematic areas. • Inadequate funds at the programme level to facilitate coordination and supervision of activities conducted by partners. • Regions and districts fail to allocate funds for IEC/BCC activities. • Limited capacity building on development of effective IEC/ BCC messages in the regions and districts. • Lack of a resource center for IEC/ BCC materials at the national level. • No storage facilities for IEC materials at NMCP. • Some of the tradition healers and tradition birth attendant advice their client contrary to IEC/BCC messages on malaria intervention. • Stock outs of ACT, SP, Vouchers and nets hinder take up of prevention behaviors.

Opportunities	Threats
· High political will and support, President as the chair of the ALMA. · Presence of Tanzania Parliamentarians against Malaria Association (TAPAMA). · Local media support of IEC/BCC initiatives. · School Health support for in and out of school interventions. · Women and youth groups. · Public events; exhibitions and commemorations.	· Large majority of the funding for BCC activities is donor dependent making it less sustainable in the long run. · Insufficient resources (human and financial).

4.5.9 Success, Best Practice and Facilitating Factors

The development of Malaria Communication Strategy is the key facilitating factor in the successful implementation of malaria IEC/BCC activities in Tanzania Mainland. The strategy has enabled better coordination of partners' activities and stipulated key messages to be followed by all implementing partners. The IEC/BCC Cell and its partners have developed annual harmonization matrix that helps to avoid duplication of efforts and resources. The matrix has also helped NMCP to identify areas that need more focus in case there is a new partner.

Recent data on behavior shows improvement on key indicators. For example, data from the Tanzania Red Cross society (TRCS) from 2008 shows that 90%, of care givers interviewed were aware of the importance of using ITNs/LLIN, while the subsequent TRCS survey conducted in 2010 showed that 97.2% of care givers were aware on the importance of ITN/LLIN for prevention of malaria. On average more than 4 million people are reached directly with malaria IEC/BCC activities/messages per year (2011) (Source: implementing partner reports/ Implementing Partners Reporting System). After a recent radio campaign, the following data were compiled from a national survey:

- 86% (April 2010) and 72% (Sept 2010) heard malaria message on the radio within the last month.6.
- Out of 72% who had heard a message, 73% reported taking an action.

[6]Omnibus 2010

Table 9: BCC National Survey

What actions did you take after you heard the radio messages?	I went to buy a treated mosquito net for my family.	15%
	I make sure my family is sleeping under ITN every night.	44%
	I didn't take any action	27%
	My family or I now go for malaria test early, whenever I see signs and symptoms.	14%
	I discuss with friends about the importance of sleeping under ITN every night.	8%

Source: Omnibus 2010

At least 50% of villages in Tanzania Mainland have CHWs/CORPs delivering malaria intervention promotional services and messages. This will continue to expand. (Source: based on 2,000 CCAs covering at least 3 villages each, plus Community Focal Persons – WVI).

4.5.10 Key Issues and challenges

Despite successful implementation of most of IEC/BCC activities, the IEC/BCC Cell faced a number of challenges. There is inadequate resources to implement IEC/

BCC activities in other areas that are not covered by partners due to restrictions from donors (i.e. environmental management and larviciding); inadequate resources to follow up on partners that implement IEC/BCC activities outside of Dar es Salaam; and inadequate follow up mechanism for reporting systems for implementers including Regional and District Malaria IMCI Focal Persons.

Misconceptions on some of the malaria interventions still exist. The communication strategy has not been translated into guidelines. The IEC/BCC materials are in short supply. The mass media channel for communication is not accessible to all communities. There is need to create conducive environment at the national level for the IEC/BCC Cell staff to play their role for all the Cells by addressing each Cell's IEC/BCC needs.

4.5.11 Conclusions and Recommendations

Conclusions

For the period of review, IEC/BCC Unit was established and took charge of advocacy, information, education, communication and community mobilization for malaria interventions. The IEC/BCC Cell performs the activities in collaboration with different partners, who are actively committed with IEC/BCC activities. The Communication Strategy for Malaria is in place and guides all implementers of IEC/BCC activities for malaria control in Tanzania Mainland. There is strong collaboration among IEC/BCC partners and also a functioning BCC Working Group that meet regularly to set BCC agendas and review the IEC/BCC materials. There is significant increase in awareness on malaria interventions throughout the country. To continue and sustain the success achieved so far, district led interventions need to be the next phase in malaria IEC/BCC. It is important for Local Government Authority, in partnership with NMCP and implementing partners, to develop, implement and own district-based strategies for malaria prevention, treatment and control. A district/regional coordination mechanism/tool, such as the Community Based Information System (CBIS) is a priority.

There need for funds to be allocated to the IEC/BCC Cell so that it can implement IEC/BCC activities in areas where other donors have not shown interest. Build the capacity of district malaria focal people to enable them coordinate district level malaria IEC/BCC activities as well as to improve linkages with the national level. District malaria focal people should develop a system of meeting with all implementing partners at the district level and to develop integrated district based IEC/BCC implementation plans. In order to facilitate the district malaria focal people and ensure synergy with national level partners' implementation, the BCC Cell should develop implementation guidelines for advocacy materials for social mobilization. District level advocacy needs to be implemented so as to sustain and/or expand activities initiated by the partners. For example, the Community Change Agents (CCAs) who are doing phenomenal jobs needs to be scaled up and sustained to cover more villages. This is even more critical in malaria endemic areas. At the national level the capacity of IEC/BCC Cell staff needs to be strengthened in terms of facilitation skills, strategic coordination, leadership and management.

Recommendations

a) NMCP should translate the communication strategy into implementation guidelines.
b) Advocacy and social mobilization materials and messages need to be updated to incorporate new initiatives e.g. larviciding and explore alternative approaches for effective communication.
c) Continue to disseminate printed materials to health workers and other strategic partners.
d) The capacity of IEC/BCC Cell staff needs to be strengthened in terms of facilitation skills, strategic coordination, leadership and management.
e) Create conducive environment at the national level for the IEC/BCC Cell staff to support all the Cells by addressing each Cell's IEC/BCC needs.
f) District/regional coordination mechanism/tool, such as the Community Based

Information System (CBIS) needs to be developed as a priority.

g) Build the capacity of district malaria focal persons to enable them coordinate district level malaria IEC/BCC activities as well as to improve linkages with the national level.

4.6 MALARIA IN PREGNANCY

4.6.1 Introduction

The current maternal mortality ratio (MMR) is estimated at 454/100,000 live births (TDHS 2010) and while the major direct causes of maternal mortality in Tanzania Mainland include obstetric haemorrhages, obstructed labour, pregnancy induced hypertension, eclampsia, sepsis and abortions, malaria is one of the indirect causes of maternal death. A study in northern Tanzania Mainland reported malaria to be responsible for about 20% of all deaths among pregnant women[7]. The prevalence of anaemia in pregnancy is about 58%, ranging from 23% in areas of low malaria transmission to 82% in areas of high transmission[8]

4.6.2 Policy and Guidance

The policy guidelines for introduction of Intermittent Preventive Treatment in pregnancy (IPTp) were developed in 2001 and the programme was launched in 2002. The policy on Malaria in Pregnancy and Focused Antenatal Care (MIP/FANC) is based on the WHO three-pronged approach of utilization of ITNs, effective case management of clinical disease including anaemia, and intermittent preventive treatment in pregnancy (IPTp) with sulfadoxine–pyrimethamine (SP). IPTp is given as 2 doses of SP during 2nd and 3rd trimesters and not less than 4 weeks apart as Directly Observed Treatment (DOT). All pregnant women are required to receive the two doses of SP during routine antenatal care visits[9]. NMCP, Reproductive and Child Health Sector (RCHS) and JHPIEGO have developed policy guidelines and training materials on Focused Antenatal Care Malaria and Syphilis during pregnancy, orientation package for service providers, 2002, Focused Antenatal Care Malaria and Syphilis in Pregnancy - Learner's Guide for ANC Service Providers; and Supervisors and Facilitator's Guide for Training in Focused Antenatal Care, Malaria and Syphilis in Pregnancy. Other training materials developed are job aids on MIP and interpersonal communication as well as quality improvement tools. These guidelines were updated in 2004 and 2010 and also translated into Kiswahili.

4.6.3 Organization of Service Delivery

In Tanzania Mainland, antenatal clinic (ANC) attendance is high where 95% of the pregnant women make at least one visit during their pregnancy (TDHS 2010). Malaria in pregnancy services are offered using antenatal care clinics platform. At the national level, coordination of MIP services is through the Case Management Unit which oversees the MIP implementation in collaboration with the Reproductive and Child Health Section. JHPIEGO (Johns Hopkins University Affiliate) and other Development partners provide technical assistance to these MOHSW sections to ensure high quality of RCH services including MIP.

At the regional and district levels, the Regional Health Management Teams (RHMTs) and Council Health Management Teams (CHMTs) respectively, guide and coordinate implementation of MIP services. The essential medical equipment and supplies are mainly distributed through the Medical Stores Department (MSD) which has zonal stores from where the District Medical Officers can collect their commodities. Malaria in pregnancy services are offered in RCH clinics at dispensary, health centre, district and regional hospitals throughout the health care delivery system.

4.6.4 Human Resources, Training and Capacity Development

At zonal, regional and district levels, the reproductive and child health services are coordinated by Reproductive and Child Health Coordinators (RCH Cos). In addition the Regional and District Malaria Focal

[7]Kitua AY: Antimalarial drug policy in Tanzania: making systemic change *Lancet* 1999., 354(Suppl 32)
[8](TDHS 2004/05)
[9]The National Road Map Strategic Plan to Accelerate Reduction of Maternal, Newborn and Child Deaths in Tanzania 2008 – 2015

Persons (R/DMIFP) coordinate malaria control interventions focusing at the community level.

Training of health workers on prevention and treatment of malaria in pregnancy is done both for pre-service and in-service health workers. In pre-service, all tutors responsible for teaching ANC topics from the 63 nursing midwifery schools and at least one preceptor from each health facility where students go for practical orientation have been trained[10] on FANC/MIP and training equipment provided; including overhead projectors, flip-chart holders, laptop computers, LCD projectors, blood pressure (BP) machines, anatomical models and books on RCH.

Each year about 1,600 nurses graduate with FANC/MIP knowledge and skills and are deployed in the health facilities. In-service training is done in collaboration with JHPIEGO.

4.6.5 Annual Planning

At NMCP, there are various working groups including that of drug management and malaria diagnostic.[11] The members of the working groups include partners who collaborate on MIP, from academic institutions, UN bodies and NGOs.

Also at RCHS, there is the Save Motherhood Initiative Working Group that meets on quarterly basis to discuss issues on safe motherhood including MIP.

The process of planning for the MIP interventions starts with joint planning and consultations between JHPIEGO, RCHS, NMCP and the partners.

The plans are then shared with the Regional and District Medical Officers; and RCH Coordinators through advocacy meetings.

Table 10: Progress over Time in Focused Antenatal Care

Achievements	2004/5	2005/6	2006/7	2007/8	2008/9	2009/10	
Providers trained	215	390	1,826	540	1,565	1,299	1,257
Cumulative total providers trained	215	605	2,431	2,971	4,536	5,637	6,907
Proportion of estimated total ANC providers (6,000)	3.5%	10.1%	40.5%	49.5%	75.5%	94%	115%
Pre-service	-	-	-	1,615	1,615	1,615	1,615
Number of facilities covered	95	193	889	362	1185	955	196
Cumulative total facilities covered	95	288	1,177	1,448	2,633	2,941	3,397
Proportion of estimated total ANC facilities (4,796)	2%	6%	24%	32%	55%	61%	-

Source: JHPIEGO Reports 2004 - 2011

Through advocacy, Council Health Management Teams (CHMTs) have been mobilized to budget funds in their Comprehensive Council Health Plans (CCHP) for FANC/MIP training. By September 2011, about 67 districts had conducted FANC training and over 1,634 ANC providers trained using CCHP funds.

4.6.6 Performance Indicators and Targets

The Malaria Medium Term Strategic Plan (NMMTSP) 2008–2013 had the following targets:

- 80% IPTp 2 uptake for pregnant women by 2013,
- 80% of currently pregnant women sleeping under ITNs by 2013,
- 80% of households owning at least one ITN by 2013,
- All health providers in MCH clinics would

[10]National Curriculum: National Technical Award level 4 - 6 Module: midwifery 2 life threatening condition.

[11]National malaria medium term strategic plan 2008-2013

be aware of the risks and consequences of malaria in pregnancy and be advised to use of IPTp and ITNs.

Based on these targets, coverage for IPTp 1 reached 61% but IPTp 2 only reached 26 % (TDHS 2010). Performance indicators are collected routinely at health facilities and incorporated into national health information systems. JHPIEGO collects facility-based data from selected sentinel sites on quarterly basis including data on stock-outs of essential ANC commodities and is recorded in the JHPIEGO Training Information Management System (TIMS) data base[12]. The reports are shared with NMCP.

4.6.7 Service Delivery Outputs and Outcomes

Every pregnant woman is given an ANC card (Clinic Card #4) in which all personal information pertaining to the pregnancy is recorded. This card is kept by the client. Data on IPTp is collected on MTUHA Book 6 register kept at the clinic. JHPIEGO collects facility based data on MIP from selected sentinel sites on quarterly basis. The information collected is analyzed and shared with the facilities, DMOs, NMCP, RCHS and the donors.

Table 11: Survey results on IPTp uptake and ITNs use by pregnant women.

Year	Survey	IPTp1	IPTp2	ITNs
2004/05	TDHS	53%	22%	16%
2007/08	NATNET	50%	45%	19%
2007/08	THMIS	57%	30%	27%
2007/08	NMCP	65%	31%	30%
2010	TDHS	61%	26%	57%

4.6.8 SWOT Analysis

Strength

- Established Cell on prevention and treatment of malaria in pregnancy.
- MIP policy in place.
- Presence of guidelines and training materials.
- At least one provider trained in MIP in each health facility.
- At least 4 trainers in each district.
- ANC providers in every district are trained on MIP.
- Every district is implementing MIP interventions.
- The majority of ANC providers in every district are trained on MIP.

Weakness

- Low uptake of IPTp.
- Inadequate data management skills at the facility level.
- Core indicators for IPTp not captured by HMIS.
- Inadequate coordination between public and private facilities.
- Shortage of skilled staff and frequent stock-out of essential drugs and supplies including SP.
- Inadequate BBC/IEC materials on MIP at the districts and facility levels.

[12]Jhpiego Training Information Management System data base

Opportunity	Threat
• Reproductive and Child Health Coordinators in place and working on MIP. • Funds available from Development partners and Government for MIP. • ANC clinics present an opportunity for clients to receive information on MIP. • Occasions for advocating on MIP such as World Malaria Day (WMD), Saba Saba and Nane Nane.	• TInadequate number of skilled ANC providers at ANC clinics to deliver quality MIP services.

4.6.9 Successes, Best Practices and Facilitating Factors

The success of the interventions has been due to effective collaboration between National Malaria Control Programme and Reproductive and Child Health Section of the MOHSW in collaboration with JHPIEGO. The partnership developed training materials and job aids; trained health workers and conducted comprehensive supportive supervision to the health facilities. At the regional and district levels there are malaria focal persons who work closely with the Reproductive and Child Health Coordinators on implementation of MIP interventions at the facility and community levels.

4.6 .10 Key Issues and Challenges

The late booking and irregular ANC attendance by pregnant women requires more efforts in creating demand for quality ANC services and advocating safe motherhood initiatives through the BCC/IEC interventions. The shortage of skilled health providers at ANC clinics especially in the lower level facilities continues to be a major challenge. Inconsistent supply of necessary equipment and supplies/commodities at ANC clinics hinders provision of quality FANC/MIP services. Poor quality of ANC services delivery including negative attitude of health providers contributes to low ANC attendance among pregnant women and lack of BBC/IEC activities on MIP at the community level leads to inadequate community involvement and participation.

4.6.11 Conclusion and Recommendations

Conclusions

Generally the prevention and treatment of malaria in pregnancy interventions have been very beneficial to the health of pregnant women; however IPTp 1 uptake remains 61% while IPTp 2 uptake is 26% despite the available resources. With high (96%) first antenatal clinic attendance one would have expected higher rates of IPTp 2 coverage. NMCP will work with MSD to ensure timely provision of essential commodities and with development partners to train ANC providers on interpersonal communication skills/BCC and IEC. Quality improvement approach will be introduced in the health facilities to enhance provider performance and NMCP will encourage Council Health Management Teams to undertake BCC/IEC activities in their respective districts.

Recommendations

a) Strengthen sensitization on the importance of early ANC attendance and use of IPTp to pregnant women.
b) NMCP in collaboration with development partners to train providers on interpersonal communication skills.
c) Enhance provider performance through quality improvement approach.
d) Increase coverage of ANC facilities with skilled staff by additional FANC/MIP training and encourage districts to allocate funds for FANC/MIP training and supervision.
e) Improve reporting of MIP data through continued training of ANC providers and supervisors on data management.

4.7 SURVEILLANCE, MONITORING AND EVALUATION

4.7.1 Introduction

Monitoring and Evaluation is one of the key supportive interventions of the National Malaria Medium Term Strategic Plan 2008–2013 and is responsible for monitoring the progress towards achieving pre-specified goals, objectives and targets. Health facility and population based data are used to provide strategic information for malaria monitoring and evaluation.

4.7.2 Policy, Guidance and Coordination

Since the inception of Roll Back Malaria (RBM) Partnership in Tanzania in 1999, the development of the first Malaria Medium Term Strategic Plan (NMMTSP) 2002-2007 and later the current NMMTSP 2008-2013; progressive scale up of malaria prevention and control interventions have been achieved as a result of improved partnership and investment in malaria. The Monitoring and Evaluation Plan 2008-2013 was developed in 2009; as a roadmap for monitoring implementation of routine malaria prevention and control activities and evaluating the effect of such interventions at population level. The M&E Plan harmonizes all household surveys with timelines. The plan is consistent with the Roll Back Malaria (RBM) Monitoring and Evaluation Reference Group (MERG) indicators.

The Surveillance, M&E Cell within the Programme coordinates all M&E activities and is responsible for daily operations associated with M&E within the programme. The M&E Technical Working Group provides technical guidance on M&E issues and meets every quarter. Likewise the M&E Network comprised of representative from all partners; meets twice per year to discuss M&E activities, share updates to the M&E implementation, indicators, data collection systems, and dissemination of information.

The Surveillance, Monitoring and Evaluation (SM&E) Unit works closely with Health Management Information System (HMIS) and Integrated Disease Surveillance Reporting (IDSR) Units in the Ministry of Health and Social Welfare; and National Bureau of Statistics (NBS) in respect to routine health facility based and population data respectively.

4.7.3 Human Resources, Training and Capacity Development

SM&E Unit is composed of the Unit Head and three Programme Officers. The composition of the qualifications include: epidemiologist, Bachelors of Science, Diploma in Environmental Health Science and Masters in M&E. In collaboration with PMI, WHO, MACEPA and research institutions; M&E Officers and R/DMIFPs were trained on Monitoring, Evaluation and Supportive Supervision.

4.7.4 Routine Information System

Health Management Information System (HMIS) is used in the health sector to collect routine data from all health facilities. Malaria indicators are reported annually through the annual abstract prepared by the HMIS Unit in the MOHSW. As confirmatory diagnosis is not available in all health facilities, thus reported cases constitute both clinical and confirmed cases, leading to overestimating the magnitude of malaria. HMIS is generally weak resulting in poor quality of data collected, incompleteness and delayed reporting. The MoHSW in collaboration with a consortium of partners is engaged in strengthening the system through M&E Strengthening Initiatives to improve the Health Information System in Tanzania Mainland.

In 2009, MOHSW adopted the District Health Information System 2 (DHIS2) in partnership with University of Dar es Salaam and some Non Governmental Organizations (NGOs). The overall effort focuses on capacity building at sub national level especially at district level to improve the coverage, quality and efficiency of health services by empowering health workers; ensuring effective implementation

of strategic and operational plans; and timely feedback. Through this initiative, 42 districts are implementing the DHIS2 under MoHSW. 7 districts in Pwani region under Clinton Health Access Initiative, 12 districts in Lindi and Mtwara regions and 27 sentinel districts, (one district per each region) under Ifakara Health Institute. It is expected that this initiative will be scaled up nationally to strengthen HMIS. Integrated Disease Surveillance and Response (IDSR) data is collected and submitted on weekly basis. It is operationalized in all government health facilities and includes malaria cases which are reported monthly. NMCP and partners are currently working on the establishment of large scale MEEDS with weekly reporting of cases in the framework of IDSR.

4.7.5 Sentinel Surveillance System

In 2002 the first National Malaria Medium Term Strategic Plan 2002-2007 was developed. The SM&E Unit within the National Malaria Control Programme was put in place to coordinate and oversee the implementation of malaria monitoring and evaluation activities. Seven districts were selected as sentinel districts for monitoring the performance of the strategic plan. The number of sentinel districts increased progressively from seven in 2001 to nine in 2003 and to 21 districts in 2005. Each sentinel district represents a region.

NMCP commenced the implementation of Health Facility Based Sentinel Surveillance (HFBSS) in 2008. The report relied on regular health facility reports of malaria morbidity and mortality in five hospitals in malaria endemic zones. The selected hospitals were Utete (Pwani), Mpwapwa (Dodoma), Rubya (Kagera), Dareda (Manyara) and Masasi (Mtwara). Data is collected from the Outpatient Department (OPD), Inpatient Department (IPD), Reproductive and Child Health (RCH), laboratory and pharmacy and entered into an MS Excel file which is submitted to the national database on monthly basis. The findings show that malaria comprised 39% of total OPD cases, of which 71% were tested for malaria giving an overall positivity rate of 21%. However, the HFBSS has not reported regularly since 2010, due to phasing off of funding.

4.7.6 Malaria Surveys

A series of household and facility based surveys were carried out. Household surveys include Tanzania Demographic and Health Survey (TDHSs 1996, 1999, 2004/5, and 2009/10); Tanzania HIV Malaria Indicator Survey (THMIS 2007/8); NMCP surveys (2001, 2003, 2005, 2008) and Tanzania National Voucher System (2005, 2006, 2007, 2008). Health Facility Assessments includes Tanzania Service Provision Assessment (TSPA 2006) and Service Availability Mapping (SAM 2005); Monitoring and Evaluation of the Tanzanian National Net Strategy; Qualitative investigations; Under Five Catch up Campaign and Upgraded Vouchers Sub National Survey (November 2010); and Retail Audit (September 2011).

4.7.7 Malaria Reporting

Routine reporting, including quarterly and annual reports, from the district through the MFIP is low. Although NMCP reports quarterly and annually to the MoHSW on operational activities, malaria bulletin has not been developed.

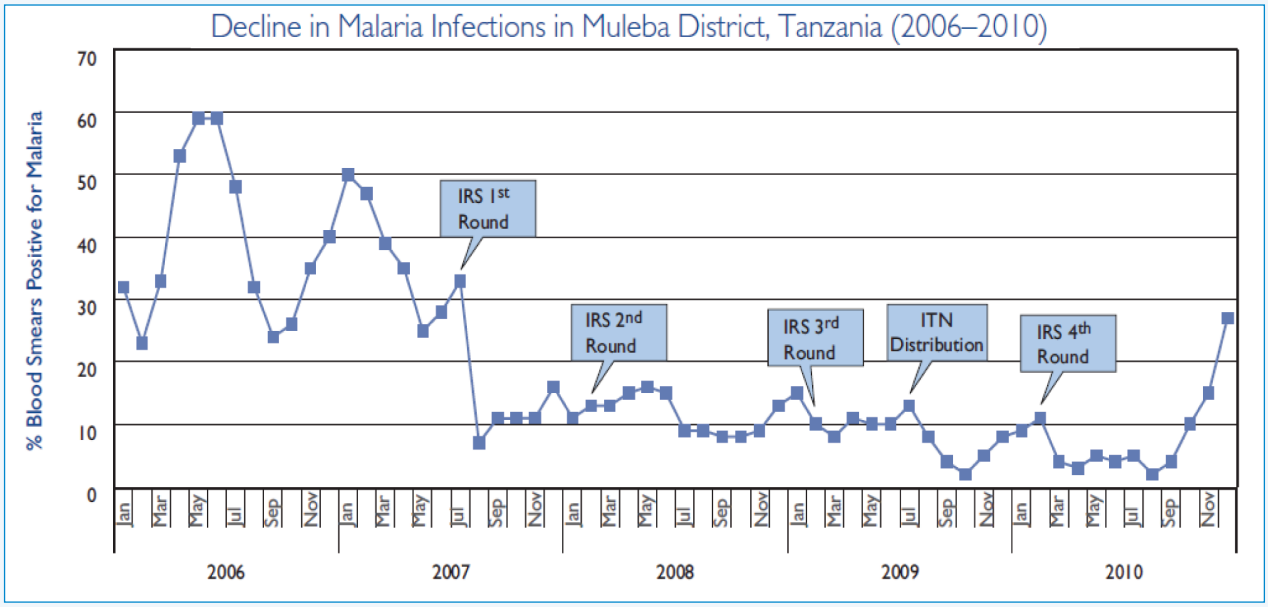
4.7.8 Malaria Database and Information System

The national malaria database was established in 2003 and is mainly based on malaria data collected through Health Management Information System (HMIS). The database includes the district and health facility profile which produces districts and health facility tables and figures automatically. There is information on antimalarial commodities consumption data, supervision reports, published and unpublished research data. Through the HMIS, 87% of the districts reported in 2003 while in 2009 less than 50% districts reported.

As part of the national database, Malaria District Database (MDDB) was created in 2003 initially for 21 epidemic prone districts to set up Malaria Epidemic Early Detection System (MEEDS). The 21 epidemic prone districts are: Same, Hai, Siha, Meru, Muleba, Karagwe, Ludewa, Makete, Iringa rural, Rungwe, Njombe, Mufindi, Kilolo, Sumbawanga, Mpwapwa, Kongwa, Bahi, Chamwino, Lushoto, Ngara and Hanang. In 2010, District Malaria Data Managers

and DIMFPs were trained from additional ten endemic districts to participate in the MEEDS. The 10 endemic prone districts are Tunduru, Chunya, Magu, Bariadi, Rufiji, Igunga, Bunda, Arusha rural, Morogoro rural and Iramba.

Figure 18: Malaria Infections in Muleba District Jan. 2006 – Sept. 2010



Source: Tanzania Vector Control Scale-up Project: Spray Performance Report 2010-2011

In Muleba district, 3 hospitals and 2 health centres with inpatient facilities, malaria related admissions and deaths rates in children under five years of age in 2006 and 2010 dropped dramatically from 145 to 23 per 1,000 (84% reduction) and 42 to 5 per 1,000 (89% reduction) respectively. IRS results in Karagwe were also impressive.

At the district hospital, confirmed malaria cases fell from an annual average of 23% (2003-2007) to 10% (2008-2009) and 5% in 2010 (January-September). In both Muleba and Karagwe, the introduction of IRS was followed by at least a four-fold reduction in confirmed malaria cases.

4.7.9 Progress towards Achievement of Targets

Table 12: Achievement on Outcome and Impact indicator 2008–2013

Impact Indicators						
Definition	**Baseline Value**	**Baseline Year**	**2009 Target**	**2010 Achieved**	**2011 Target**	**2013 Target**
All cause under-five child mortality	112/1000	2004	95/1000	81/1000	85/1000	65/1000
Outcome Indicators						
Proportion of households with at least one ITN	36%	2007	70%	64%	90%	90%
Proportion of all household members who slept under an ITN the night preceding the survey	21%	2007	50%	45%	80%	80%
Proportion of children under five years of age who slept under an ITN the night preceding the survey	26%	2007	85%	64%	85%	85%
Proportion of pregnant women who slept under an ITN the night preceding the survey	23%	2007	35%	57%	85%	85%

Source: DHS, THMIS

The MOHSW has a website which provides access to information on health policies, guidelines and other related issues (www.moh.go.tz). The NMCP website is currently under development and is expected to be operational by end of 2011.

4.7.10 SWOTs Analysis

Strengths	Weaknesses
• Functional Surveillance, M&E Cell. • M&E Plan 2008-2013. • Draft Supervision and Monitoring Guidelines. • National malaria database which is linked with other reporting systems such as routine and surveys. • Malaria District Database (MDDB) for MEEDS in epidemic prone districts. • Draft Standard Operating Procedures (SOP) and Data Entry Protocol for data management. • Data collection software at regional and district levels. • Harmonized household survey tools and procedures. • Monitoring of antimalarial and insecticide resistance. • Entomological monitoring. • Research priority areas identified in collaboration with stakeholders. • Availability of funding for research. • Functional M&E TWG and M&E Network.	• Inadequate number of human resource and skills set to coordinate and manage SM&E Unit. • Delayed feedback to sub national levels. • Delays in reporting and incompleteness of reports from regions and districts. • Complex and multiple reporting tools from various partners. • Weak implementing partners' coordination. • Some databases managed by implementing partners are not synchronized with the national database. • Inadequate numbers of human resources of required skills mix. • Delayed sharing of operational research findings, for decision making.
Opportunities	**Threats**
• Ongoing initiative to strengthen HMIS and IDSR. • Initiatives to improve confirmatory diagnosis. • Establishment of sentinel panel of districts for surveillance programme. • SMS for Life for real-time data. • NBS as a partner in conducting national surveys. • Experienced partners for operational research.	• Reliance on RBM partners' expertise. • Sustainability of funding for research. • Attrition of staff.

4.7.11 Successes, Best Practices and Facilitating Factors

The major success is increased coverage of malaria control interventions. There is universal coverage of ITNs, high IRS coverage in targeted areas, diagnostics (mRDT) and treatment in public and private sectors. M&E Plan 2008-2013 was developed. Household survey tools and procedures were harmonized. The national malaria database is available though insufficient. RMIFP were trained on malaria, monitoring and supervision; and equipped with vehicles and computers.

4.7.12 Key Issues and Challenges

SM&E Unit within the NMCP though responsible for the overall coordination of SM&E activities in the country, has limited human resources in terms of numbers and

skills mix for effective coordination. The M&E TWG though active, does not devote adequate time or commitment to ensure adequate guidance to the SM&E Unit. The national malaria database though available requires improvement in terms of data quality, timeliness, completeness and regular updating to generate reports. The database has different formats for data collection and management from other implementing partners, thus making importation and management of data from partners' databases tedious and time consuming. Though NMCP and partners have a strong and long term experience in malaria research and malaria priority research areas are identified; this requires updating and the development of an operational research framework. Even though scaled up interventions shows improvement of malaria morbidity and mortality indicators trends, the stratification maps are outdated.

4.7.13 Conclusion and Recommendations

Conclusions

Surveillance, monitoring and evaluation for malaria prevention and control have improved over the years. The development of first National Malaria Medium Term Strategic Plan 2002-2007 provided an impetus to improve coordination and establishment of Surveillance, Monitoring and Evaluation Unit within NMCP to coordinate all SM&E activities. The development of the Monitoring and Evaluation Plan 2008-2013 and harmonization of household surveys further strengthened coordination of SM&E. The Unit in collaboration with partners has coordinated partners in the implementation of SM&E activities including national and sub national surveys, health facility assessments and numerous operational researches. There has been increased support from partners in strengthening capacity for monitoring and evaluation within NMCP. There is a strong collaboration with research and training institutions for operational research in the areas of therapeutic efficacy testing and insecticide resistance monitoring. A research agenda has also been defined. The NMCP has conducted several household surveys which have provided information on coverage and impact of malaria intervention efforts. A malaria impact evaluation has also been recently conducted with the involvement of partners.

Weak health systems are impacting negatively on the monitoring and evaluation of the performance of the programme in reducing malaria burden. Other health information system strengthening efforts are uncoordinated and reflect special interests. Routine malaria data from HMIS is inadequate, incomplete and untimely making it difficult to understand the impact of the current efforts of universal coverage of LLINs on morbidity and mortality at health facility level. Moreover, the HMIS does not capture data from the private sector. The current HMIS and IDSR strengthening initiatives are still limited to some districts and thus do not have national scope. The national malaria database is in place though information sharing within the NMCP and with malaria partners/stakeholders is inadequate. Antimalarial therapeutic efficacy studies are sub-contracted to research institutions but results are delayed. There is limited knowledge on quality of care in the health facilities.

Recommendations

a) Collaborate with M&E Strengthening Initiatives (MESI) so as to reactivate health facility assessment.
b) Strengthen M&E Unit with adequate number of human resource with required skills mix for effective coordination.
c) Advocate for strengthening the M&E TWG and M&E Network to provide adequate time and commitment to ensure optimal guidance to the SM&E Unit and other SM&E partners.
d) Improve the national malaria database and data quality in terms of timeliness and completeness. Standardize NMCP and implementing partners' data collection and management tools and formats to ensure ease of importation and management of data from all partners' databases in a timely manner.
e) Strengthen health system initiatives by liaising with MOHSW HMIS Unit to adequately monitor and evaluate the performance of the programme to further reduce malaria burden.

4.8 EPIDEMIC PREPAREDNESS AND RESPONSE

4.8.1 Introduction

Malaria epidemic risk in Tanzania Mainland is a threat for a large size of the population. A quarter of the country is considered to be prone to malaria epidemics due to geographical, climatic and ecological factors that make malaria transmission highly seasonal and unstable. Under these conditions the acquired population's herd immunity becomes low. During epidemic events the risk of severe malaria morbidity and mortality increases consistently in epidemic prone areas.

The epidemiology of malaria epidemics in Tanzania Mainland have not been clearly defined due to lack of resources and limited geographical information system (GIS) technology. The existing expression is only based on knowledge of malaria stratification done by eminent malariologist (Clyde) in 1967 and historical events of malaria epidemics. The factors associated with malaria epidemics in Tanzania Mainland are essentially two: abnormal rainfall and increased minimum temperatures. About 7% of the Tanzanian population live in areas with no or very low malaria transmission and a further 13% of the population lives in areas with unstable highly seasonal malaria transmission.

In the past 15 years, ten districts have reported malaria epidemics that occurred in some areas within their boundaries. These are Lushoto and Korogwe (Tanga), Mpwapwa and Dodoma Rural (Dodoma), Muleba Ngara and Karagwe (Kagera), Babati and Hanang (Manyara). Additionally there are districts where malaria epidemics might have occurred but the records are not available or reports have not been made. Epidemics have occurred in three to six year cycles in several of the affected districts foe example in Muleba and Karagwe districts (Kagera region). In other areas (central region) epidemics have been reported every 10 years or more in association with abnormal events (el-nino phenomenon, massive removal of cattle due to critical environmental degradation and missed zoo prophylaxis).

The current census projection is used to estimate the population at risk in epidemic prone areas. In areas with less than 3 months malaria transmission (classified as epidemic prone areas) there are 10,150,000 people, the equivalent to a quarter of the Tanzania Mainland population. The current scale up of malaria control interventions are expected to increase the proportion of population at risk of epidemics. This is due to the expected decrease of population passive immunity level. In the context of the malaria epidemiological transition, the threat of occurrence of malaria outbreaks is increasing though no dynamic model to project the increased risk of malaria instability has been developed.

Table 13: Population at Risk in Various Transmission Zones

Transmission	Zone	Population
Over 6 months stable (perennial)	Coast, Lakes	17,000,000 (42%)
4-6 months (stable seasonal)	Central plateau	13,700,000 (33%)
1-3 months (strongly seasonal or epidemic)	Fringe highlands	3,150,000 (8%)
Less than 1 month (epidemic potential or no malaria)	Highlands	7,000,000 (17%)

Source: NMMTSP 2008-2013

4.8.2 Policy and Guidance

In the NMMTSP 2008-13 malaria epidemic prevention and control is not a standalone strategy but it is placed under Monitoring, Evaluation, Surveillance and Operational Research where two targets regarding EPR have been mentioned:

- By the year 2013 all malaria epidemic prone districts have stratified maps on epidemic hot spots and have set-up functional Malaria Epidemics and Early Warning and Detection Systems (MEEWS and MEEDS)
- By the year 2013, all malaria epidemics are detected and contained within two weeks from the onset.

4.8.3 Organization Structure

In the NMCP organogram EPR is located within the Surveillance, Monitoring and Evaluation Unit. No formal national focal person has been appointed centrally or at the district level, furthermore no EPR teams have been formulated centrally or at lower levels in epidemic prone districts.

4.8.4 Guidance

Although two targets regarding EPR have been mentioned in the 2008–2013 NMMTSP, there is no official epidemic preparedness and control policy or guidelines in place and no preparedness plan developed. A draft guideline developed in 1999 and updated in 2002 has not been finalized or ratified.

4.8.5 Human Resources, Training and Capacity Development

District Malaria/IMCI Focal Persons and Data Managers from 21 epidemic prone districts were trained between 2009 and 2010 on various issues related to epidemics, early warning systems and data management. In 2010, a further 20 District Malaria/IMCI Focal Persons and Data Managers were trained on the same from ten endemic districts of Tunduru, Chunya, Magu, Bariadi, Rufiji, Igunga, Bunda, Arusha Rural, Morogoro Rural and Iramba.

4.8.6 Annual Planning

No EPR plan has been developed during the current 2008–2013 plan. Preparedness plans had been developed at national level and in a few epidemic prone districts in 2003-2005 and have not been updated since.

4.8.7 Service Delivery Outputs and Outcomes

In the NMMTSP 2008-13 malaria epidemic detection and response is not a standalone strategy but is placed into a cross sectional one; surveillance, monitoring and evaluation and operational research.

4.8.8 SWOT Analysis

Strengths	Weaknesses
• There is some understanding of epidemic triggering factors. • Experience in using health facility data to generate epidemic thresholds. • Experience and capacity in using weather information to detect abnormal levels.	• Draft national EPR guidelines have not been updated or ratified. • District and health facility staffs have limited capacity on epidemic detection and response. • No IEC strategy identified for epidemic events. • Epidemics are not frequent events and preparedness can be affected by long term implementation. • Low priority of EPR within NMMTSP implementation.

Opportunities	Threats
• Possibility of improved surveillance in collaboration with IDSR. • Opportunity to work with partners to build capacity for district and health facility staff. • Tanzania Metrological Agency and local weather stations available at district and some sub district levels. • Willingness among NMCP to improve operations towards epidemic detection and response. • Opportunity to include Malaria Epidemic Prevention and Control into the CCHP.	• Climate change

4.8.9 Success, Best Practices and Facilitating Factors

Due to insufficient allocation of resources (for the 2008–2013 NMMTSP) the implementation of malaria epidemic detection and response activities have not been adequately done both centrally and in all malaria epidemic prone districts, however some successes had been reached in EPR implementation in the previous NMMTSP 2002-2007. A number of activities have been undertaken; a contingency stock of commodities at central and district level for emergency situation had been procured in 2003-04 but has not been replenished, though the districts were supposed to replenish the contingency stock within their annual comprehensive council health plan.

A simple system for detection of abnormal weather conditions had been introduced in some epidemic prone districts in 2003-04 the system is based on abnormal rainfall and temperature detection. Weather monitoring charts with threshold calculated from 10 years retrospective data were developed, however actual rainfall and temperature are not updated monthly to detect abnormal trends. Intensified malaria surveillance had been introduced in 9 districts between 2003 and 2005, though no follow up was provided. The aim of this intensified surveillance was to establish a Malaria Epidemic Early Detection System (MEEDS). The system involved collection of retrospective epidemiological data from health facilities in epidemic prone districts to establish individual malaria thresholds.

The NMCP developed draft guidelines for EPR back in 1999 and updated it in 2002. The draft has not been finalized or ratified. A preparedness plan had been developed in 2003-04 and shared with 6 districts with history of epidemics. Since then the plan has not been updated. Guidelines were expected to provide guidance to all districts and other stakeholders on the different interventions in epidemic prone districts and their implementation. In some emergency situations partners (PMI and MSF) provided some emergency stock for the outbreaks. In 2005, MSF provide stocks in Muleba district and 2007 USAID in Karagwe and Muleba districts.

4.8.10 Key Issues and Challenges

- The draft guidelines for epidemic preparedness and response developed in 1999 and updated in 2002 has not been finalized or ratified.
- An epidemic preparedness plan developed in 2003-04 and shared with 6 districts with history of epidemics has not been updated and finalized.
- Non functioning Malaria Epidemic Early Warning and Detection Systems.
- No formal national or district EPR teams is in place.
- Insufficient allocation of resources for implementations of malaria epidemic detection and response activities both centrally and in malaria epidemic prone districts.
- In the current strategic plan the component show a relatively low profile compared with the previous plan.

- The risk of creating new unstable transmission areas is increasing (e.g. in urban population and in fringe highlands), due to the changing malaria epidemiology (from holo-hyper to meso-hypondemicity).

4.8.11 Conclusion and Recommendations

Conclusions

The Malaria Epidemic Early Detection System (MEEDS) was established in 2002 in selected facilities in the epidemic prone areas and in areas where intensive malaria control initiatives are implemented including indoor residual spraying (IRS). At the national level the NMCP does not have EPR plan nor do the regions and districts. In the context of malaria epidemiological transition, the threat of occurrence of malaria outbreaks is increasing.

Recommendations

Revise and finalize the malaria epidemic prevention and response guidelines.

a) Resume and expand MEEWS and MEEDS and integrate malaria in the weekly IDSR reporting system in epidemic prone areas.
b) Train regions and districts on Malaria Epidemic Early Detection System (MEEDS).
c) Develop epidemic preparedness and response plan and support epidemic prone districts to develop, implement and monitor epidemic preparedness and response plans.
d) Update national malaria epidemic risk map and redefine malaria epidemic prone districts.
e) Appoint a National EPR focal point and formulate a central EPR team.

5.0 MPR CONCLUSIONS AND RECOMMENDATIONS

5.1 Conclusion

National Malaria Control Programme is well set for management and operationalization of the National Malaria Medium Term Strategic Plan. There is high political will and commitment from the government at the highest level. The programme is supported by Development and implementing partners. At the regional and district levels the malaria programme works through the Regional Health Management Teams (RHMTs) and Council Health Management Teams (CHMTs) respectively.

Thus far, Tanzania Mainland has achieved universal coverage with LLINs which marks a milestone true to her slogan "Malaria Haikubaliki" (malaria is not acceptable). There is additional protection to the population at risk in IRS targeted areas. Furthermore, population of Dar es Salaam are benefiting from additional larviciding. Rapid Diagnostic Tests (RDTs) have been scaled-up and foreseen to cover the whole nation. In addition to the public sector distribution, access to ACTs has improved in the private sector through the AMFm. Information Education and Communication/ Behavioural Change Communication has contributed to improved public awareness, enhanced community participation, and increased uptake of malaria control interventions. The scale-up of these interventions have contributed to the change in malaria epidemiology.

Stratification maps are outdated and may not reflect effects of the recent scaling-up of interventions. Notably the government's financial support to NMCP implemented interventions is comparatively low; making the programme reliant on external funding. Hence sustenance of the achievements and gains becomes a challenge. Inadequate coordination of programme activities is hindered by the lack of integrated annual operational plans. The emergence of pyrethroid insecticides resistance to malaria vectors species and the potential development of parasite resistance to antimalarials due to the presence of oral Artemisinin in the market is a threat to the achievements outlined above.

5.2 Recommendations

a) Develop a comprehensive annual implementation plan to improve partner coordination, joint planning, monitoring and evaluation in line with the "Three Ones".
b) The government should consider increasing its recurrent allocation for malarial control interventions in order to sustain the current gains.
c) Strengthen entomological and epidemiological surveillance system in order to assess the impact of malaria interventions.
d) Enforce the policy on banning of oral artemisinin monotherapies in the country.
e) Update the national malaria epidemiological maps to enable targeting and reflection of impact of interventions.

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7.0 ANNEXES

Annex 1: Signed Aide Memoire

THE UNITED REPUBLIC OF TANZANIA

MINISTRY OF HEALTH AND SOCIAL WELFARE

NATIONAL MALARIA CONTROL PROGRAMME

Tanzania Malaria Programme Performance Review

Aide Memoire

November 2011

National Malaria
Control Programme

I. Purpose

The malaria program review (MPR) is a periodic joint programme management process for assessing progress and performance of country programmes with the aim of improving performance and refining or redefining the strategic direction and focus. This aide memoire summarizes the findings and critical actions emerging from the Tanzania Mainland MPR. The aide memoire is a re-statement of the joint commitment of the Ministry of Health and Social Welfare (MOHSW) and its partners to work together to follow up on the recommendations of the MPR and support implementation towards the long term goal of achieving a malaria-free Tanzania. It is neither a memorandum of understanding nor a legal document. A detailed report of the MPR from which this aide memoire has been derived will be distributed to all partners and stakeholders. Copies of the main report will also be available at the National Malaria Control Program (NMCP) of the Ministry of Health and Social Welfare.

II. Background

The Ministry of Health and Social Welfare (MOHSW), through the Health Sector Strategic Plan III (2007 – 2012) and the National Malaria Control Programme (NMCP) Medium Term Strategic Plan (2008 – 2013), have been scaling up multiple malaria interventions. In collaboration with partners NMCP decided to undertake a comprehensive review of the progress and performance of the malaria programme for the period of 2002 to 2010/11.The objective of the review was to assess the current policies, strategies and activities with a view of strengthening the malaria control program and health systems used in delivery of malaria control services.

The specific objectives of the MPR were to a) review the malaria epidemiology, b) assess progress towards achievement of national, regional and global targets by intervention thematic areas and service delivery levels, c) review the structure, organization, and management framework for policy and program development within the health system and the national development agenda, d) review the current program performance by thematic areas and by service delivery levels and e) define the next steps for improving program performance and/or redefine the strategic direction and focus including revising policies and strategic plan.

The review was organised in four phases.

1. Consultation of partners to agree on the need and scope of the review;
2. Desk reviews leading to the production of the thematic reports
3. Central level consultations with senior management of MOHSW and partners in addition to field visits to districts resulting in this aide memoire
4. Follow up on the recommendations.

III. Key Findings and Action Points

1. Malaria Epidemiology

Over 93% of the Tanzania Mainland population lives in malaria transmission areas. *Plasmodium falciparum* is the parasite responsible for 90% of malaria infections; the other 10% is attributable to *P. malariae*, *P. ovale* and *P. vivax*. Mosquitoes from the *Anopheles gambiae* complex and the *An. funestus* group are the vectors responsible for all malaria transmission. Over 40% of under-five inpatient admissions are diagnosed with malaria. According to the Tanzania HIV/AIDS and Malaria Indicator Surveys (THMIS) 2007/08 malaria parasite prevalence in children under-five years was 18% nationally ranging from 1% to 41%. Epidemiologically there are three strata: unstable seasonal malaria, stable malaria with seasonal variations and perennial malaria.

However, after four years of intensive malaria control efforts the current epidemiological profile is uncertain. Recent unpublished research suggests that vector dynamics are changing and malaria transmission is decreasing. The malaria case definition has changed to capture confirmed cases and this will change the data on malaria burden. Stratification maps are outdated and may not reflect effects of the recent scaling-up of interventions. Ideally the HMIS data are supposed to be utilized at the facility and district including regional and national

level. The HMIS has been reviewed recently and is on the rollout process to address the adequacy, accuracy, reliability and timeliness of data.

1.1.1 Action points

a) Update the national malaria epidemiological maps to enable targeting and reflection of impact of interventions.
b) Collect and analyze more recent data on Malaria burden in facility to inform on impact of Malaria interventions.

2. Malaria Policy and Program Management

The National Malaria Control Program (NMCP) coordinates malaria control efforts in the country; and is under Assistant Director Epidemiology and Disease Control in the MOHSW's Directorate of Preventive Services. The NMCP is responsible for formulating policies and guidelines, mobilizing resources, coordinating implementation and monitoring progress. Implementation of malaria control is guided by the Malaria Medium Term Strategic Plan 2008-2013 although there is no current annual implementation plan. The NMCP organogram has technical units supported by technical working subcommittees/ groups. The NMCP is staffed by a mix of health professionals and support staff. At the regional and district levels the malaria programme works through the Regional Health Management Teams (RHMTs) and Council Health Management Teams (CHMTs).

There is strong high level political will and commitment from the government. The programme is supported by international development partners who provide both technical and financial assistance.

Government contribution to the malaria programme funding is substantial in terms of the health system and larviciding, but inadequate to meet current needs. The MOHSW, through the NMCP, has mobilized considerable technical support and financial resources from the US President's Malaria Initiative in addition to the Global Fund, UN – Agencies, Swiss Development Cooperation (SDC) and other bilateral contributing to the health basket fund. Policies, strategies and guidelines have been developed and disseminated to all levels of the health care delivery system. Health workers have been trained in malaria interventions including at community level. Malaria is implemented in an integrated approach at all levels of health care delivery.

NMCP is well set for easy management and operationalization of the program. However, with a wide range of implementing partners, technical coordination is a challenge. Some technical working groups are operating, however sub-optimal. The NMCP does not develop one integrated annual operational plan in collaboration with partners resulting in inadequate coordination and monitoring of implementation. Communication and information sharing is inadequate.

There are insufficient human resources and an inadequate skill mix in NMCP to assume its leadership role in most technical areas. The government's financial support to NMCP is too low, making the programme heavily reliant on external funding making maintenance of the achievements made fragile in an environment of economic turbulence and uncertain future funding.

1.1.2 Action points

a) Strengthen management skills amongst NMCP staff and recruit/assign the missing professionals (M&E expert, Medical entomologist and Statistician).
b) The government should consider increasing its recurrent allocation for malarial control in order to sustain the current gains.
c) Advocate the existing coordination mechanism, share and ensure its implementation as one plan.

3. Information, Education and Communication- IEC/ BCC

IEC/BCC is a supportive strategy in the implementation of malaria control interventions. The implementation of this strategy has contributed to improved public awareness, enhanced community participation, and increased uptake of malaria control interventions. The country commemorates the World Malaria Days annually with high-level political participation.

There are trained Community Volunteers at ward and community levels and some local civil societies who are involved in sensitizing and mobilizing communities.

However, misconceptions on some of the malaria interventions still exist. The communication strategy has not been translated into guidelines. The IEC/BCC materials are in short supply. The mass media channel for communication is not accessible to all communities.

1.1.3 Action points

a) NMCP should translate the communication strategy into implementation guidelines.
b) IEC/BCC materials and messages need to be updated to incorporate new initiatives e.g. larviciding, and explore alternative approaches for effective communication
c) Continue disseminate printed materials to health workers and other strategic partners

4. Vector Control

The NMCP implements integrated vector management comprising indoor residual spraying (IRS), insecticide treated nets (ITNs) and larviciding, guided by the Integrated Malaria Vector Control Guideline. However, Tanzania does not have updated malaria vector distribution maps and sufficient epidemiological information to re-focus the next round of targeted interventions, given the massive impact expected through the recent large scale interventions. Between 2009 and 2011, under five catch up and universal coverage campaigns were conducted to achieve universal coverage of ITNs resulting in increased ITN ownership and use.

TDHS 2009/10 found that the proportion of households that owned at least one ITN and the proportion of under-fives using ITNs were both 64%. Following the just completed campaigns on under-five and universal, the coverage is expected to increase. In areas where IRS is targeted, 92% of the targeted structures were covered protecting about 6 million people. Larviciding in Dar es Salaam is ongoing. There is a functional insecticide resistance monitoring system in collaboration with health research institutions.

The current 'keep-up' strategy through the voucher scheme reaches only a proportion of vulnerable groups. The disposal of old LLINs may cause environmental pollution as they are not biodegradable. The risk of resistance developing to pyrethroid insecticides is particularly high when both in LLINs and IRS rely upon pyrethroid class insecticides. In some areas of Tanzania some resistance to pyrethroids has been detected.

1.1.4 Action points

a) Continue to conduct entomological monitoring and update malaria vector distribution maps.
b) Finalize a robust LLINs keep-up strategy and mobilize resources to maintain high coverage recently achieved.
c) Establish a disposal mechanism for old LLINs in collaboration with net manufacturers and stakeholders.
d) Retarget IRS based on new epidemiological findings after several rounds of spraying including implementation of resistance mitigation strategies before further resistance occurs.

5. Malaria in Pregnancy

Malaria prevention and control during pregnancy has a three-pronged approach in the country, including intermittent preventive treatment (IPTp), ITN use and case management of clinical illness. IPTp was introduced in 2001.

Policy guidelines and training materials for implementation of IPTp were developed and health workers trained. IPTp 2 coverage in 2010 has reached 26% according to TDHS 2010. Main challenges include late presentation to ANC by pregnant women and stock-outs of ANC supplies/ commodities (particularly SP) at clinics which hinder provision of quality focused antenatal care (FANC) services. In addition, MTUHA registers do not capture malaria in pregnancy data.

1.1.5 Action points

a) Strengthen sensitization on the importance of early ANC attendance and the use of IPTp to pregnant mothers.

6. Malaria Diagnosis and Treatment

In 2001, Tanzania changed the recommended first line treatment for uncomplicated malaria from chloroquine (CQ) to Sulfadoxine-Pyrimethamine (SP) with Amodiaquine as the second line drug. Due to increasing resistance to SP the policy was further changed to Artemisinin based Combination Therapy (ACT) in 2006. Quinine was retained as second line therapy as well as medicine of choice for severe malaria. ACTs are free of charge to children under five and pregnant women.

Currently, the NMCP has diagnosis and treatment guidelines in place. Laboratory confirmation of malaria by microscopy has been confined to hospitals and some health centres, while health workers in dispensaries and remaining health centres relied upon presumptive diagnosis. Implementation of rapid diagnostic tests (RDTs) expanded malaria diagnosis to 52% of the districts in late 2010. NMCP trained laboratory technicians in quality assured laboratory diagnosis. There is a functional central quality assurance assessment of malaria diagnostics and antimalarial drugs. To improve access to ACTs, Affordable Medicines Facility for Malaria (AMFm) was introduced in 2010 and has been scaled up nationally in addition to Accredited Drug Distribution Outlets (ADDO).

However, implementation is hampered by delayed treatment seeking behavior by the community. The laboratory diagnosis of malaria is constrained by an inadequate number of trained staff, limited availability of RDTs, inadequate quality assurance/quality control system, and non-adherence to laboratory results by clinicians. Despite the ban of artemisinin monotherapies in 2006, the presence in drug outlets of artemisinin monotherapies is a threat to the effectiveness of ACTs. The pharmacovigilance system is present but weak. Currently, there is no household-based system for malaria testing and diagnosis. There are frequent antimalarial commodities stock-outs in the public sector.

1.1.6 Action points

a) Enforce the policy on banning of artemisinin monotherapies in the country.
b) Improve malaria diagnosis by scaling up rapid diagnostic tests (RDTs) coverage.
c) Institute quality assurance of malaria diagnosis for microscopy and RDTs to boost clinician confidence in laboratory results.
d) Strengthen the linkage with other community-based health programmes to implement a package on household based management of malaria.
e) Strengthen pharmacovigilance system by strengthening recording and reporting of adverse events including zero reporting.

7. Epidemic Detection and Response

About 7% of the Tanzanian population live in areas with no or very low malaria transmission and a further 13% of the population lives in areas with unstable highly seasonal malaria transmission. The ongoing scale up of malaria prevention and control interventions has the potential to create areas of unstable transmission. In the context of the malaria epidemiological transition, the threat of occurrence of malaria outbreaks is increasing.

1.1.7 Action points

a) Consider re-orienting districts on Malaria Epidemic Early Detection System (MEEDS)
b) Support epidemic prone districts to develop, implement and monitor epidemic preparedness and response plans.

8. Procurement and Supply Management (PSM) of Malaria Commodities

Currently, quantification and forecasting of malaria commodities is conducted by the NMCP in collaboration with relevant partners. At present, the procurement of malaria commodities and supplies is centralized for both pharmaceutical and non-pharmaceutical commodities. The MOHSW's Medical Stores Department procures and distributes RDTs, ACTs and other medical supplies. For LLINs the

tendering process is done through the Ministerial Tender Board. The contractor is also responsible for distribution to the communities. For IRS the contractor is responsible for procurement and spraying.

There is currently procurement and distribution of ACTs to both private and public health facilities; RDTs to public facilities in 52% of districts, LLINs have been distributed using mass distribution campaigns and routine distribution through the voucher scheme. Insecticides for IRS were delivered in 18 districts around the Lake Zone. Biolarvicides were procured for larviciding in 3 municipal councils of Dar es Salaam.

There are frequent stock-outs of anti-malarial commodities in health facilities due to delays in disbursement of funds coupled with lengthy procurement procedures. Delivery of commodities is not robust despite the presence of the Integrated Logistics System nationally. Inadequate storage space for malaria commodities results in poor stock management. Lengthy procedures for registration and tax exemption of pharmaceutical products lead to delays in delivery of commodities and supplies.

However, the procurement unit of the MOHSW has been strengthened and is being upgraded into a full directorate.

9. Surveillance, Monitoring, Evaluation and Operational Research

The NMCP has developed Monitoring and Evaluation Plan for the current strategic plan. There has been increased support from partners in strengthening capacity for monitoring and evaluation within NMCP. There is a strong collaboration with research and training institutions for operational research in the areas of therapeutic efficacy testing and insecticide resistance monitoring. A research agenda has also been defined. The NMCP has conducted several household surveys which have provided information on coverage and impact of malaria intervention efforts. A malaria impact evaluation has also been recently conducted with the involvement of partners.

Weak health systems are impacting negatively on the monitoring and evaluation of the performance of the programme. The current HMIS and IDSR strengthening initiatives are still limited to some districts and thus do not have a national scope. Other health information system strengthening efforts are uncoordinated and reflect special interests. Routine malaria data from HMIS is inadequate, incomplete and untimely making it difficult to understand the impact of the current efforts of universal coverage of LLINs on morbidity and mortality at health facility level. Moreover, the HMIS does not capture data from the private sector. The national malaria database is in place though information sharing within the NMCP and with malaria partners/stakeholders is inadequate. Antimalarial therapeutic efficacy studies are sub-contracted to research institutions but results are delayed. There is limited knowledge on quality of care in the health facilities.

1.1.8 Action points

a) Collaborate with MESI so as to reactivate health facility assessment.

10. Conclusion

Tanzania has achieved Universal coverage with LLINs which marks a milestone true to her slogan “Malaria Haikubaliki” (malaria is not acceptable). Rapid Diagnostic Tests (RDTs) have been scaled-up and foreseen to cover the whole nation. In addition to the public sector distribution access to ACTs has been improved in the private sector through the AMFm. As malaria incidence reduces, there is need to scale-up and direct interventions based on epidemiological evidence at district level and adapt malaria burden reduction strategies. To increase access to antimalarial services there is a need to strengthen the engagement of the community based structures.

Implementation of the action points in this Aide memoire will facilitate Tanzania Mainland to consolidate the gains so far made towards the vision of a malaria free Tanzania.

IV. Commitment

We, the Government of the United Republic of Tanzania through the Ministry of Health and Social Welfare and partners, agree to the findings and to the conclusions observed to the implementation of these Malaria Programme Review action points to facilitate the accelerated scale up of malaria control interventions for universal access and sustainable impact with the ultimate goal of sustained control and subsequent elimination in the country.

Signed on behalf of the Government of United Republic of Tanzania and Partners:

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Ministry of Health and Social Welfare

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Annex 2: List of Participants

MPR Exercise Participation March 2010 to November 2011

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Annex 3: Partnership Map

Institution Name	Funding and/or Implementing	Key Technical Areas of Intervention	Geographical Range
AMREF	Implementing	CM, IRS	National, Regional, District and Community
CF/CHAI	Both	CM, PM, OR	National
SDC	Both	ITNs	National
CSSC	Implementing	IEC/BCC	Community
HFNT	Implementing	IEC/BCC on CM	Nationally
IHI	Implementing	OR and M&E	National
JHPIEGO	Implementing	IPTp	National, Regional and District
JHU	Implementing	IEC/BCC	National, Regional, District and Community
JHU/COMMIT	Implementing	IEC/BCC	Regional, District and Community
JMP/KCMC	Both	OR, IMVC,	Regional, District and Community
JSI	Implementing	PSM	National
MACEPA/PATH	Both	M&E	National
Malaria No More	Both	IEC/BCC	National
MEDA	Implementing	ITNs	National, Regional, District and Community
MOHSW	Both	All	National
MSD	Implementing	PSM and larviciding	National, Zonal, Regional, District
NIMR/CEEMI	Implementing	Capacity building and OR	National
NMCP	Implementing	All	National
PMI	Funding	All	National
PMORALG	Both	All	Regional, District and Community
PSI	Implementing	IEC/BCC	National, Regional, District and Community
RTI International	Implementing	IRS and M&E	National, Regional and Districts
TANAM	Implementing	IEC/BCC	National
Tanscott Associates	Implementing	M&E	National, Regional, District and Community
TFDA	Implementing	CM	National, Regional, District and Community
Tibu Homa	Implementing	CM	National, Regional, District and Community
T-MARC	Implementing	IEC/BCC	National, Regional, and District

UNICEF	Funding	IPTp, ITNs and BCC	National
Walter Reed	Both	CM	National and Regional
World Vision Tanzania	Implementing	ITNs	National
WHO	Both	All	National

USAID
FROM THE AMERICAN PEOPLE
CDC
Centers for Disease Control and Prevention
President's Malaria Initiative

World Health Organization