Republic of South Africa

National Malaria Programme Performance Review – 2009

National Department of Health

Directorate: Malaria and other Vector-Borne Diseases

September 2009

health

Department:
Health
REPUBLIC OF SOUTH AFRICA

This Malaria Programme Review and the preparation of this report were made possible by the financial and technical assistance of the World Health Organisation (WHO), Southern Africa Regional Network (SARN) and the Roll Back Malaria Partnership (RBM). The opinions expressed in this report are those of the authors and do not necessarily reflect the views of the donor organizations.

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Republic of South Africa National Malaria Programme Performance Review – 2009

Published by: **National Department of Health**
Directorate: Malaria and other Vector-Borne Diseases
Private Bag X828, Pretoria 0001
www.doh.gov.za

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ACKNOWLEDGEMENTS

The National Department of Health (NDOH) initiated the malaria programme reviews as proposed by the Southern Africa Region Network (SARN). The key persons mentioned below contributed to the success of the review in terms of the planning and field visits that were carried out in the respective provinces. The leaders of the various thematic and provincial teams (Dr D Moonasar, Dr E Misiani, Dr L Koekemoer, Dr I Ukpe, Dr C Mugero, Ms T Nemungadi, Dr L Charimari, Dr M Basimike, Ms M Groepe and Dr C Paluku) played a key role in consolidating the reports from their respective groups.

The editorial and national report writing team played a major role in working on the report concurrent to ongoing field reviews. The many hours put in by Dr E Misiani, Ms M Groepe, Dr S Murugasampillay,Mr W Dodoli, Prof. J Frean, Ms RiaGroble, Mrs T Zash and Mr T Nuthulaganti are highly appreciated for ensuring that the report was finalised.

The following NDOH and World Health Organization (WHO) officials played an important role throughout the review process: Dr F Benson (Cluster: Communicable Diseases), Dr C Mugero (Directorate: Communicable Disease Control), Dr D Moonasar, Dr Eunice Misiani, Ms T Nemungadi, Ms P Sabeka, Mr L Phuluwa, Ms C van Schalkwyk, Ms K Mmusi and Ms NerineWillers (Directorate: Malaria and other Vector-Borne Diseases), Ms M Groepe and Ms I Pholosi (World Health Organization).

The different partners from various institutions such as National Institute for Communicable Diseases (NIDC), University of Cape Town, Medical Research Council, WHO, Southern African Developing Community (SADC), private sector and other government departments are thanked for their tireless efforts in ensuring that the review was a success.

The full list of all the participants in the review process, including the individuals and teams interviewed during the fieldwork, are included in Annexure B.

LIST OF ACRONYMS

ACT-		Artemisinin-based Combination Therapy
AU	-	African Union
CDC	-	Communicable Disease Control
CFR	-	Case Fatality Rate
DDT	-	Dichlorodiphenyltrichloroethane
DOH		Department of Health
DWAE	-	Department of Water Affairs and the Environment
E8 MOU	-	Elimination Eight Memorandum of Understanding
EPR	-	Epidemic Preparedness and Response
GDP	-	Gross Domestic Product
GFATM	-	Global Fund to Fights AIDS, Tuberculosis and Malaria
GIS -		Geographical Information System
DHIS	-	District Health Information System
HIEER	-	Health Information Evaluation Epidemiology Research
ICU -		Intensive Care Unit
IDC -		Industrial Development Corporation
IEC -		Information Education and Communication
IM -	I	Intramuscular
IRS -		Indoor Residual Spraying
IV -		Intravenous
KAP-		Knowledge Attitude and Practice
LLIN	-	Long Lasting Insecticidal Nets
MAG	-	Malaria Advisory Group
MCC	-	Medicines Control Council
MCP	-	Malaria Control Programme
MIS -		Malaria Information System
MOU	-	Memorandum of Understanding
MPR	-	Malaria Programme Review
MRC	-	Medical Research Council
MVBD	-	Malaria and other Vector-Borne Diseases
NDOH	-	National Department of Health
NGO	-	Non-Governmental Organisation
NHLS	-	National Health Laboratory Services
NICD	-	National Institute for Communicable Diseases
NMCP	-	National Malaria Control Programme
NPO	-	National Professional Officer
OPD	-	Out Patient Department

PHC	-	Primary Health Care
RBM	-	Roll Back Malaria
RDT	-	Rapid Diagnostic Test
SADAG	-	South African Depression and Anxiety Group
SADC	-	Southern African Development Community
SANDF	-	South African National Defence Force
SCAT	-	Sub-Committee on Chemoprophylaxis and Treatment
SP	-	Sulphadoxine-pyrimethamine
SVC	-	Sub-Committee on Vector Control
UCT	-	University of Cape Town
WHO	-	World Health Organization

EXECUTIVE SUMMARY

In March 2009, South Africa signed the Elimination Eight Memorandum of Understanding (E8 MOU) with seven other SADC countries that committed to eliminate malaria by 2015[1]. In connection with this commitment, the NDOH called for a comprehensive malaria programme review (MPR) to assess the status of the national malaria control program (NMCP) and to redesign a strategic plan in line with the E8 MOU's elimination agenda. This report details the key achievements of the programme, highlights challenges and proposes recommendations towards achieving the goal of malaria elimination in South Africa.

There has been a consistent and significant decline in trends of malaria cases and deaths. A key finding of the MPRis that KwaZulu-Natal, Mpumalanga and parts of Limpopo are already in the pre-elimination phase, with malaria transmission rates below the World Health Organization (WHO) threshold of five cases per 1 000 population at risk. This progress has been achieved through a strong malaria program that is fully funded by the government. A high coverage (>85%) for Indoor Residual Spraying (IRS) has been sustained over the past ten years, and there has been significant attention paid to case investigations and outbreak response. These interventions have driven down local transmission; consequently, a majority of the country's cases now come from outside South Africa. Population groups still at high risk for malaria include travellers and migrants moving to and from other endemic provinces and countries, as well as people in some communities along sections of the northern border shared with Zimbabwe and the eastern border along Mozambique.

To achieve nationwide elimination, the malaria control programmes at the national and provincial levelsmust overcome some programmatic and logistic challenges. Highest among them is a shortage of skilled human capacity, particularly at the programme management levels. Communication between provinces and with the NDOH is hampered by incompatible malaria information systems and the lack of a strong, shared monitoring and evaluation tool. Due to shortage of staff, there is inadequate clinical and epidemiological analysis of data – at all facilities, districts, provinces and at central level for more effective patient and program management.

The key recommendations include the development of a costed malaria elimination strategic plan 2010-2015* and recruitment of additional staff at National Malaria Program as well as appointment of dedicated malaria officers in non-endemic provinces.

*[*]After consultation with South Africa's Malaria Advisory Group and review of South Africa's malaria epidemiology, it was determined that elimination in South Africa is feasible by the year 2018.

1. INTRODUCTION

1.1 BACKGROUND

The 2009 MPR was undertaken by the NDOH and an external teamconsisting of WHO officials and the chairperson of the Southern African Development Community (SADC) Malaria Managers. For South Africa to prepare for malaria elimination as outlined in the SADC elimination framework, it was necessary to complete a programme review before the start of 2010. The MPR fieldwork was conducted from August to September 2009 and focused on key aspects of the malaria control program (MCP) in line with WHO recommendations: programme management, vector control, case management, epidemic preparedness and response, surveillance, monitoring and evaluation, and health promotion.

In addition to assessing and reorienting the national malaria policy and its implementation practices, the MPR also provided an opportunity to collect epidemiological data to paint a comprehensive picture of malaria in South Africa. Accurate data establishes a new baseline from which realistic targets can be established and maintained on the path toward malaria elimination.

1.2 OBJECTIVES OF THE MPR

The objectives of the MPR are as follows:

- To review the current malaria policies, health systems and operations according to key indicators and targets set by the WHO.
- To review the implementation of policies and programme interventions within the context of the health system and national agenda.
- To review the malaria epidemiology (endemicity, seasonality, parasite, vector situation) in South Africa.
- To assess progress towards the global, SADC and AU targets, including malaria elimination in South Africa by 2015.
- To review the current programme service delivery systems, their performance and challenges.
- To define the next steps to improve programme performance in line with the elimination strategy.

1.3 METHODOLOGY OF THE MPR

The review compared best practices, gaps, epidemiological status and trends against the WHO's elimination continuum. The monitoring and evaluation impact indicators that were employed included: the number of cases, number of deaths and case fatality rate. The review divided research and analysis along key thematic areas: vector control; case management; surveillance; epidemic preparedness and response; and health promotion.

Phase I - Planning phase

The review started with a consultative process whereby the national malaria control programme briefed the Malaria Advisory Group (MAG) and stakeholders on the concept of a malaria programme review in April 2009. A review team was established to undertake the review, analyze the data and write the report. The team members were grouped accordingtotheir areas of expertise: programme management, epidemic preparedness and response, vector control, case management, epidemiology, surveillance, monitoring and evaluation, advocacy and health promotion.

The three endemic provinces of Mpumalanga, Limpopo and KwaZulu-Natal were selected for review. Although Gauteng and North West are non-endemic provinces, they were invited for inclusion because of the increased numbers of imported malaria cases they experience compared to other non-endemic provinces.

The WHO review tools that had been used in Kenya were adapted to the South African context. The detailed final tools used are included in Annexure C. The proposal for the MPR was developed and submitted to the Directorate: Health Research in the NDOH for ethical approval.

Phase II: Conducting the review

The review team conducted an in-depth review of reports, research papers, strategic plans and operational plans for each thematic area, using published and unpublished material from the national and provincial malaria programmes and from research institutions.

Internal and external reviewers were drawn from experts from South Africa and neighbouring countries and the WHO. The reviewers conducted joint field visits at the national and provincial levels from 31 August to 11 September 2009. The team met senior management at national and provincial departments of health to brief them on the rationale, objectives and expected outcomes of the review. Each endemic province provided data reflecting the number of malaria cases in each district. The review team selected health facilities (with the most or least malaria cases in the last season) from district lists. The team also selected districts reporting a larger number of malaria cases in non-endemic provinces. The table below lists the districts and health facilities selected for assessment.

Province	District	Sub-district/ Municipality	Facility/ Station/Community
Gauteng	***City of Johannesburg***	Region B	Helen Joseph Hospital
		Region E	Charlotte Maxeke Hospital
		South and North	Natalspruit Hospital
	Ekurhuleni	Ekurhuleni	Tembisa Hospital
North West	***Dr Kenneth Kaunda***	Matlosona	Klerksdorp/Tshepong Hospital
	Ngaka Modiri Molema	Mafikeng	Mafikeng General Hospital, Park Street Clinic
		Ratlou	Disaneng Clinic and village
Limpopo	***Vhembe***	Mutale	Mhinga Community Healthcare Centre (CHC), Malamulele District Hospital
		Thulamela	Tshilidzini Regional Hospital
	Mopani	Giyani	Mokgwati Malaria Station, Mhlava Willem, Muyexe and Thomo CHCs
Mpumalanga	***Ehlanzeni***	Nkomazi	Komatipoort Municipal Clinic, Tonga Hospital, Naas and Mangweni Clinics
		Mbombela	Rob Ferreira Hospital
		Bushbuckridge	Tintswalo Hospital
KwaZulu-Natal	***Umkhanyakude***	Jozini	Umkhanyakhude District Office, Ndumu Clinic, Malaria Control Program, Ndumu Satellite Lab
		Umhlabuyalingana	Manguzi Hospital
	Uthungulu	Umhlatuze	Ngwelezana Hospital, Lower Umfolozi War Memorial District Hospital (LUWMPH), The Bay Hospital
	Ethekwini	--	Medical Research Institute

Table 1: Provinces, Districts and Municipalities Assessed

Interviews were conducted at provincial and district hospitals. The review team conducted field observation and focus group discussions according to the guidelines in order to collect information and answers to important queries. Hospital records were reviewed at provincial and district hospitals. Finally, the review team interviewed programme management, including relevant directorates and key partners at national level, using structured WHO data collection tools.

At the end of each provincial visit, the team debriefed senior provincial management on the findings and compiled comprehensive reports. Findings and recommendations were also presented at national level. The provincial reports, thematic reports, as well as reports from national interviews, formed the basis of this review report.

Phase 3: Compilation of report

The review teams analyzed provincial and facility data, summarized their findings and generated recommendations to enhance detection and treatment toward the goal of elimination. The teams provided initial feedback to the provincial health teams and provided debriefed debriefing at the national level before drafting this document.

2. CONTEXT OF MALARIA CONTROL

2.1 HISTORICAL MILESTONES

In 1998, when the last malaria review was conducted, there was malaria transmission in the Northern Province (currently Limpopo), Mpumalanga, and the northeastern part of KwaZulu-Natal. Limited focal transmission occurred in the Northern Cape and North West along the Orange and Molopo Rivers. In 1998, the malaria control interventions included insecticide spraying, variable levels of confirmed diagnosis and vector surveillance.

Since this last review in 1998, many new control measures have been put into place and/or strengthened. South Africa formulated its Roll Back Malaria (RBM) strategic plan and launched it on 9 November 2001. Since 2000, the South African malaria control programme (MCP) re-emphasised the value of indoor residual spraying with residual insecticides (notably dichloro diphenyl trichloroethane DDT). Use of DDT has become more strategic in recent years, though, with targeted spraying only in high-risk areas in the malaria endemic provinces. However North West province only uses pyrethroids in its IRS programme. Spray information has since been computerised, even at district level, in endemic areas.

South Africa led Africa in the introduction of artemesinin-based combination therapy (ACT) and improved operational and programme evaluation capacities. In response to rising drug resistance to Sulphadoxine-pyrimethamine (SP), there was a drug policy change from monotherapy to ACTs. By the year 2005 all the endemic provinces were using ACTs. The introduction of ACTs as well as sustained high coverage of IRS has since led to the drastic reduction in case numbers.

Cross-border collaborations with neighbouring countries through initiatives such as the Lubombo Spatial Development Initiative (LSDI) and the Trans-Limpopo Malaria Initiative have gone a long way in ensurng harmonization of malaria interventions with neighbouring countiies. Both the initiatives started in 2001 but only the LSDI received funding through the Global Fund to Fight AIDS, Tuberculosis and Malaria (GFATM).

Developments in surveillance include the incorporation of Gauteng Province into the Malaria Advisory Group and subsequent reporting to the NMCP on a weekly and monthly basis from the Gauteng and North-west provinces which are non-malaria endemic provinces but harbour large numbers of imported malaria cases.A malaria information system and database including geographical information systems (GIS) was introduced in Limpopo, Mpumalanga and KwaZulu-Natal.

Through the implementation of the various RBM strategies, South Africa has achieved the objective of the *Abuja Declaration* - reducing morbidity and mortality due to malaria by 50% by 2010. In achieving this goal one year after its launch, the country also achieved millennium development goals 4, 5 and 6 as far as malaria is concerned. By 2001, morbidity was reduced by 59% (26 506 cases in 2001 compared to 64 622 cases in 2000), marking a key success of the public health sector in South Africa.

2.2 MALARIA CONTROL WITHIN THE NATIONAL DEVELOPMENT AGENDA

South Africa has consistently adopted policies and treaties/declarations aimed at reducing the malaria burden in the country. In the context of the health system and the national development agenda, the Millennium Development Goals play a key role in setting the standards of achievement of the various goals, particularly the health related ones. The NDOH, together with provinces, prioritised 18 districts in the country because of their poor health status, health service delivery and poor access to health services. Malaria is included in the poverty reduction plan.

The Directorate: Malaria and other Vector-Borne Diseases aligns its activities with the Department's Medium Term Strategic Framework (MTSF) and 10-Point Plan. Three malarious districts – Ehhlanzeni, Umkanyakhude and Mopani – are among the 18 priority districts receiving special attention and support to address lagging health indicators. Progress in malaria control in these districts is monitored and reported in the quarterly strategic plan reports. So far the targets of reduction of the disease burden in these districts have been achieved.

2.3 NATIONAL HEALTH POLICY

Malaria is one of the priority diseases for the NDOH in South Africa (*National Malaria Control Policy for South Africa, 2007*) because it has the tendency to cause large epidemics, with accompanying high morbidity and mortality. The goal of the malaria control programme in South Africa is to reduce morbidity and mortality due to malaria by 10% each year. The target is to have a case mortality rate of less than 0,5% and prevent the re-introduction of new cases in non-endemic areas.In South Africa, malaria is a priority communicable disease and is listed under notifiable diseases. It is included in the Presidential Development Indicator quarterly reports and the South African Human Rights Commission reports on Millennium Development Goals (MDGs).

2.4 ORGANIZATIONAL STRUCTURE FOR MALARIA CONTROL/ELIMINATION

The national malaria control programme (NMCP) is housed within the Directorate: Malaria and other Vector-Borne Diseases in the Cluster: Communicable Diseases and the Strategic Health Programmes Branch. In 2008, the Cluster: Communicable Diseases was established at the NDOH.

It includes the Directorate: Malaria and other Vector-Borne Diseases and the Directorate: Communicable Disease Control. The NMCP mainly focuses on strategic issues and operational planning, whereas the implementation of the various programme activities is done at provincial level. At the provincial level, the malaria programme is functioning under the Directorate: Strategic Health Programmes.

There are three provinces that have provincial malaria control programmes, namely KwaZulu-Natal, Mpumalanga and Limpopo. The non-endemic provinces do not have specific malaria control programmes. Instead, their communicable disease control units, which are positioned within the provincial health departments, oversee the issues dealing with malaria.

2.5 Key Players in Malaria Control

To strengthen the implementation capacity of the malaria control programmes, several stakeholders are involved. These include the National Malaria Advisory Group (MAG); the Sub-Committee on Vector Control (SVC) and the Sub-Committee on Chemoprophylaxis and Treatment (SCAT). The programme also collaborates with other stakeholders such as the Departments of Environmental Affairs (DEA), Industrial Development Corporation (IDC), several universities, the National Institute for Communicable Diseases (NICD) and the Medical Research Council (MRC).

The NMCP functions at a strategic level and forges multilateral and bilateral agreements with non-governmental organisations (NGOs) and other partners such as research institutions. The programme provides inputs to policy makers and is involved in the formulation of policies and guidelines.

2.6 Cross-Border Partnerships

South Africa has initiated two cross border collaboration initiatives, namely the Lubombo Spatial Development Initiative (LSDI) and the Trans-Limpopo Malaria Initiative (TLMI). The LSDI started in 2001 as a large-scale project and was initiated in northern KwaZulu-Natal, Mpumalanga, southern Mozambique and Swaziland.The TLMI was started in 2001 as part of the broader Trans-Limpopo Spatial Development Initiative (TLSDI). The TLMI targeted Matabeleland South Province (Districts: Beitbridge, Mangwe, Bulilima and Gwanda) in Zimbabwe and Limpopo (Vhembe District) in South Africa. The goal of the collaboration is to reduce malaria transmission on the borders along the Limpopo River. In Matabeleland South the four districts contribute 70% (22 400 out of 32 000) of malaria cases in the province.[2] However, during the past three seasons (before 2009), malaria outbreaks occurred simultaneously across country borders since implementation of malaria control interventions was a challenge in Matabeleland South Province for about three years (2006-2008).

[2] Unpublished data obtained through personal communication with Zimbabwe NMCP July 2010.

Zimbabwe and South Africa have invested their own resources in malaria control within the TLMI area. However, the challenges that have been experienced by the TLMI include lack of resources (human and financial resources) to fully implement the initiative, unforeseen malaria epidemics and highly mobile populations across the borders.

3. EPIDEMIOLOGY

3.1 GEOGRAPHICAL DISTRIBUTION OF MALARIA

South Africa is on the southern fringe of the sub-Saharan malarious area, with malaria occurringonly along the northern border shared with Zimbabwe and the eastern border along Mozambique. Malaria transmission occurs in the low altitude areas (below 1 000 meters above sea level) of Limpopo, Mpumalanga and the north-eastern part of KwaZulu-Natal. Occasionally, limited focal transmission may occur in North West along the Molopo River. About 10% (4,9 million) of the total population of South Africa lives in malaria risk areas.

The epidemiological conditions in SADC countries are considered to favour effective malaria control.The malaria elimination continuum consists of four programme phases:control, pre-elimination, elimination, certification and prevention of reintroduction.Once malaria incidence has been decreased to five cases per 1 000population at risk, pre-elimination programme elements can be implemented in targeteddistricts.The full transition to an elimination programme is usually only possible once malariacases are less than one case per 1 000 population at risk.

3.2 POPULATION AT RISK

Historically, large parts of South Africa were affected by malaria, with epidemics spreading as far south as Port St John's on the east coast in 1927 and Gauteng in the early 1930's. During malaria conducive years, these epidemics resulted in up to 20 000 deaths in a single season (Gear *et al*., 1989).

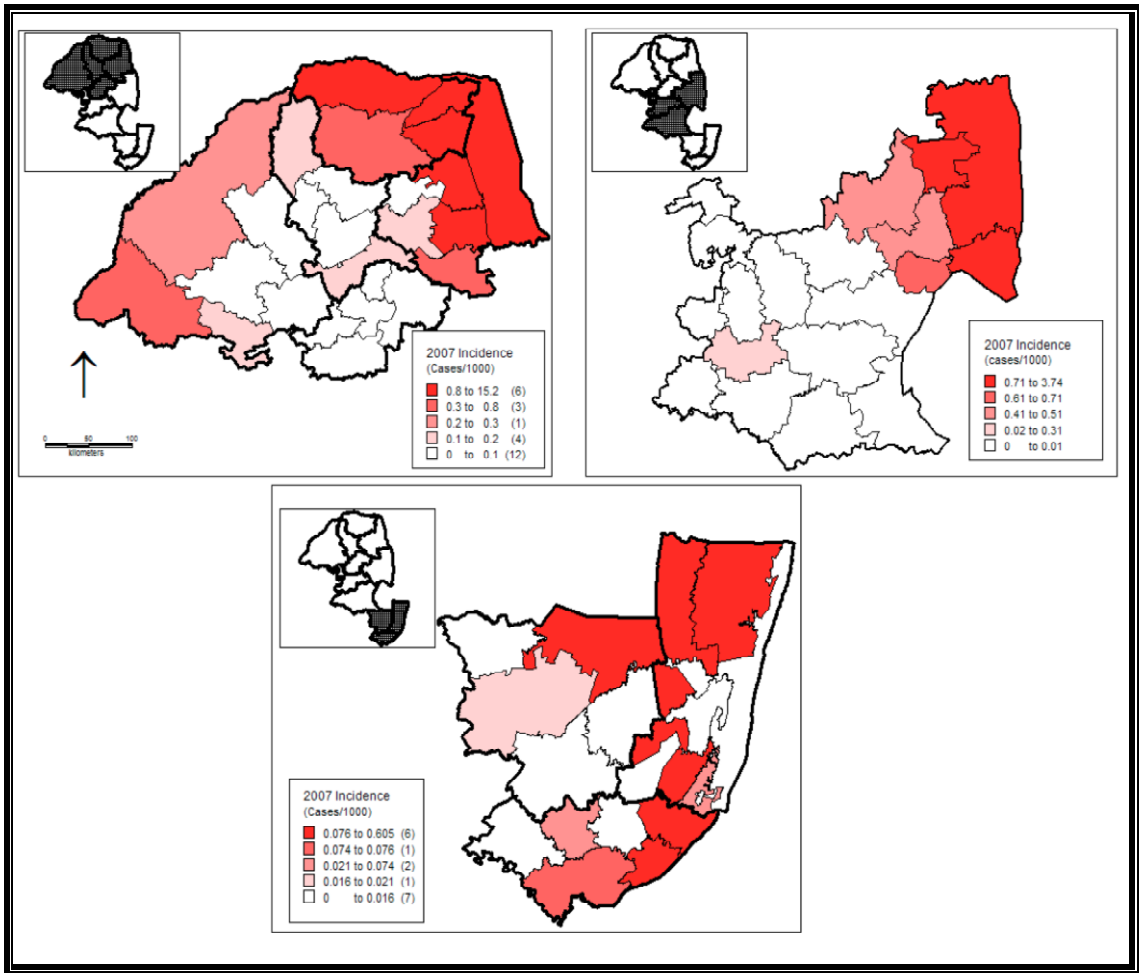
Currently, about 10% (4,9 million of the total population of South Africa) live in a malaria risk area (STATS SA, 2009). These risk areas fall within the three provinces of Mpumalanga, Limpopo and Kwazulu-Natal. These malaria areas are low transmission areas so the population at risk does not develop immunity. All age groups in malaria areas, including immigrants and travellers, from inside and outside South Africa are susceptible to malaria. Pregnant women and children under five are considered high-risk groups and referred to hospitals when they present with malaria at a clinic. Although a potential problem, HIV/AIDS and malaria co-infection in both children and adults has not been published in South Africa.

3.2.1. Malaria incidence by province

The incidence risk maps (**Figure 1**) show that malaria is confined to the north-eastern part of the country along the border area. They further indicate that malaria has been successfully reduced to very low levels, especially in KwaZulu-Natal and Mpumalanga. Most districts have reached the

elimination (these are now epidemic prone areas) stage. Now, enhanced efforts are required to ensure that the residual foci of transmission are eliminated in these areas.

Limpopo **Mpumalanga**



KwaZulu-Natal

Figure 1: Incidence risk maps for Limpopo, Mpumalanga and KwaZulu-Natal (2009)

In the past four years (2006-2009) the incidence of malaria was highest in Limpopo Province in Vhembe and Mopani Districts with an average incidence of 2,31 and 1,19 cases per 1 000 population at risk. This was followed by Mpumalanga with 0,25 cases per 1 000 population at risk in the district of Ehlanzeni. KwaZulu-Natal has the lowest incidence with less than 1 case per 1 000 population at risk. According to the elimination continuum Limpopo is in pre-elimination while KwaZulu-Natal and Mpumalanga are in the elimination phase already.

Limpopo

The distribution of malaria is along the northern and eastern borders of Limpopo, with low risk focal areas around Waterberg and Sekhukune Districts. Approximately 2,1 million people in Limpopo Province live in the malaria risk areas. The geographic pattern of disease incidence has not changed dramatically over time. High and low risk municipalities remain consistent, with fluctuation in the magnitude of disease in a given area. The spatial pattern over the last three years (2006-

2008) show that municipalities with the highest risk of malaria in the Vhembe District are Mutale, Musina and Thulamela municipalities with an incidence of between 5,49 to 12,74 cases per 1 000 population at risk recorded in 2008. In the Mopani District high risk areas are located in the greater Giyani and Ba-Phalaborwa municipalities where annual incidence range from 1,80 to 2,52 cases per 1 000 population at risk.

Mpumalanga

In Mpumalanga, malaria is mainly transmitted along the low-lying areas of the Lowveld bordering Mozambique and Swaziland where the climatic condition is conducive for malaria transmission. Ehlanzeni is the only district affected by malaria. The incidence in the this district is 0,25 per 1 000 population at risk.The district has five municipalities namely Nkomazi, Bushbuckridge, Mbombela, Umjimbi and the Kruger National Park. Malaria is unstable in the district with sporadic outbreaks. Transmission is most intense in Nkomazi and Bushbuckridge municipalities and less intense in the rest of the municipalities. Malaria peaks in January and February and declines towards May. Of the 2 960 000 population in the province, approximately 1 604 079 is at risk of malaria.

KwaZulu-Natal

The estimated population at risk of malaria in KwaZulu-Natal is 1,4 million. Of the 11 health districts, indigenous malaria transmission occurs mainly in the Umkhanyakude and Uthungulu districts, with sporadic cases occurring in Zululand. The majority of the cases (55%) are imported from Mozambique in the border districts and in the non-border districts of eThekwini in Durban with a large immigrant population. The malaria morbidity and mortality has been steadily declining in the province over the past nine years. When comparing 2001 data with that of 2008, malaria cases have decreased by 90% and deaths by 95%.

Gauteng

Gauteng has the largest population in South Africa though it is the smallest province in the country. It is the third strongest economy in Africa, contributing to 33.9% of the country's Gross Domestic Product (GDP) and 10% of that of the continent. Though Gauteng is a non-malaria endemic province, there is a large influx of people into and out of Gauteng to and from malaria endemic areas within South Africa and to neighbouring countries in African and beyond. This has resulted in Gauteng reporting almost 9% of the national cases, which exceeds those reported in KZN, a malarious province, with large numbers of malaria cases being found in travellers and migrants from LP and MP, as well as many other malaria endemic countries, particularly Mozambique.

Northwest

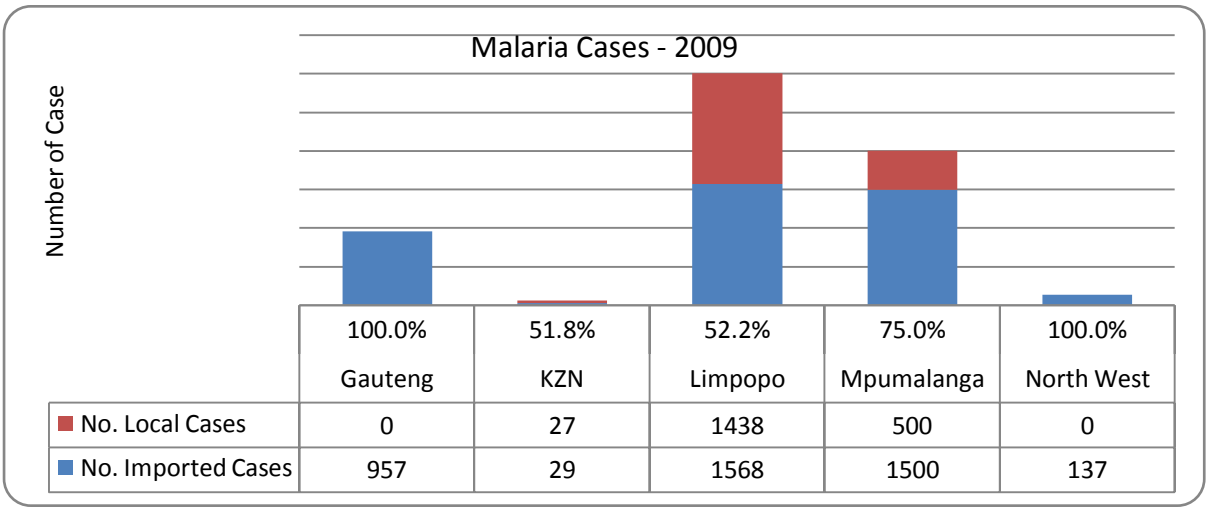
Northwest Province is non-endemic but occasional and limited focal transmission may occur along the Molopo River, which is a seasonal river. The province has a number of mining areas and therefore has an influx of migrant workers who travel regularly to highly endemic malaria areas,

such as Mozambique.The malaria control activities in North West Province include IRS with pyrethroid insecticides.

3.3MALARIA AND POPULATION MOBILITY

Migration has an impact on the pattern of malaria transmission. Although parasite prevalence has been reduced to negligible levels in the country, free movement of people along the border areas of KwaZulu-Natal, Mpumalanga and Limpopo has maintained transmission foci in these regions. Internal traveling has resulted in the escalation of malaria cases and deaths in non-transmission areas such as North West and Gauteng. External traveling, especially of seasonal migrant labour, contributes significantly to disease outbreak in non-endemic parts of the country.

The figure below (figure 2) shows the comparison of local and imported cases across the five provinces reviewed for 2009.



	100.0% Gauteng	51.8% KZN	52.2% Limpopo	75.0% Mpumalanga	100.0% North West
No. Local Cases	0	27	1438	500	0
No. Imported Cases	957	29	1568	1500	137

Figure 2 Percentage of Imported Cases Across Provinces

The figuresbelowshow longitudinal changes in local versus imported cases. In Mpumalanga, the number of local cases fell in recent years while imported cases remained fairly constant, shifting to the point that imported cases now exceed local cases (**Figure 3**).

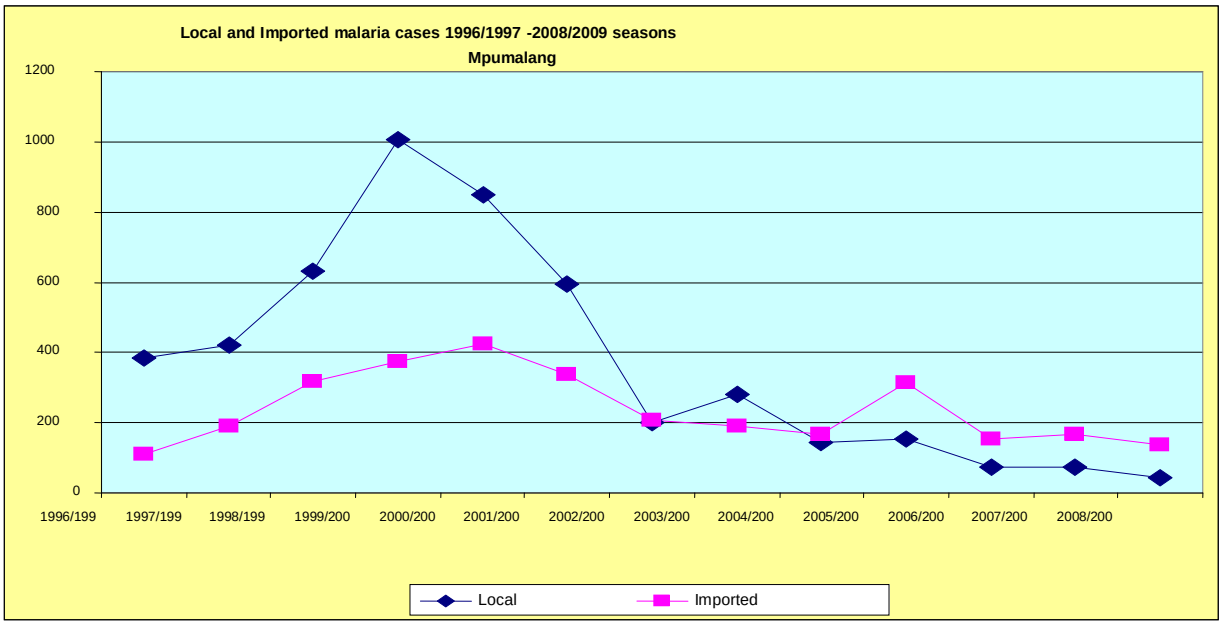


Figure 3: Local and imported malaria cases in Mpumalanga

During the last five years on average 37,6% of all cases in Limpopo were imported, with imported cases surpassing local transmissions for the first time (**Figure 4**). In KwaZulu-Natal, 55% of the cases are imported from the neighbouring border districts of Mozambique and in the non-malaria district of eThekweni (in Durban), with its large migrant population (**Figure 5**). In Gauteng and North West, all (100%) of cases are imported from neighbouring countries and travellers to endemic provinces (**Figure 6**).

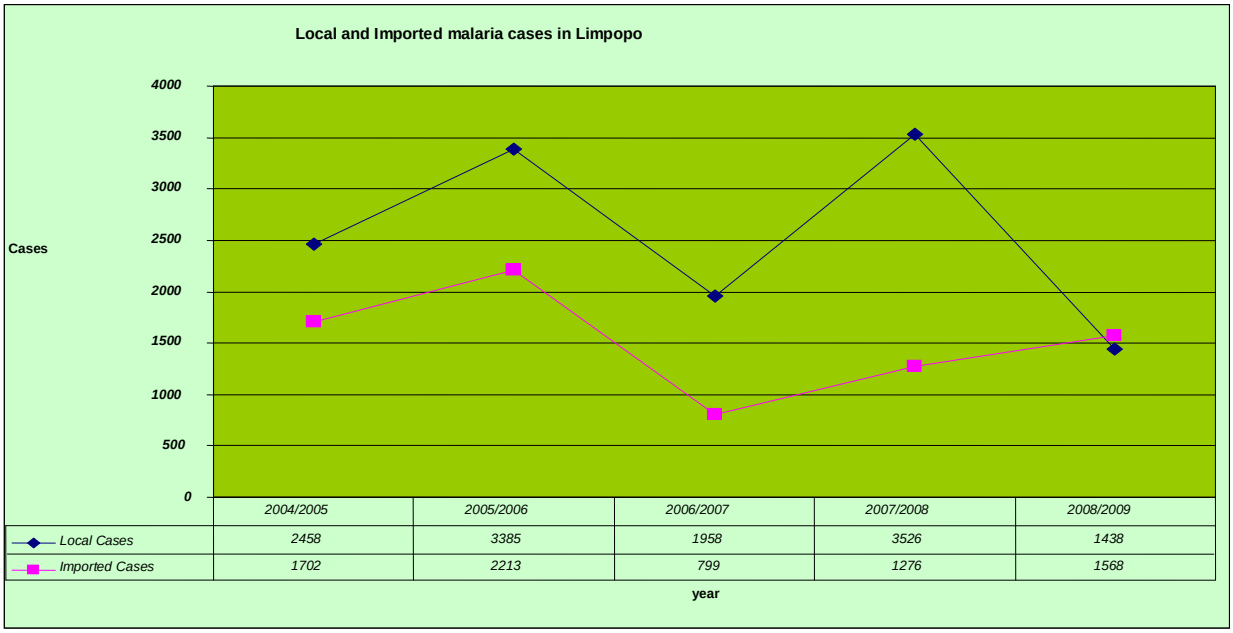


Figure 4: Local and imported malaria cases in Limpopo

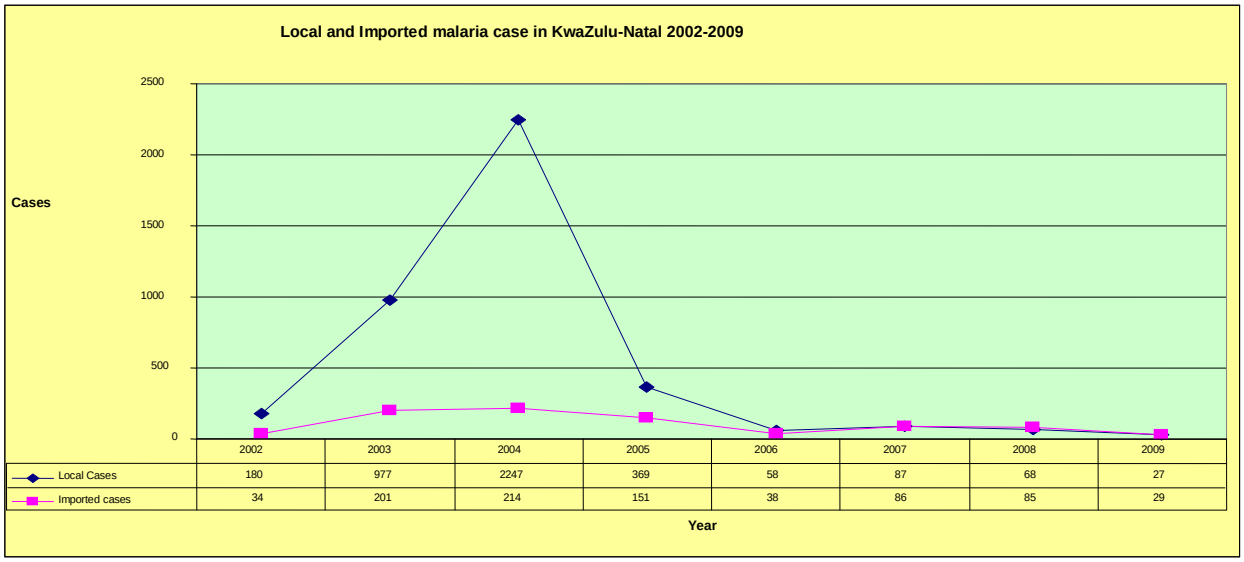


Figure 5: Local and imported malaria cases in KwaZulu-Natal

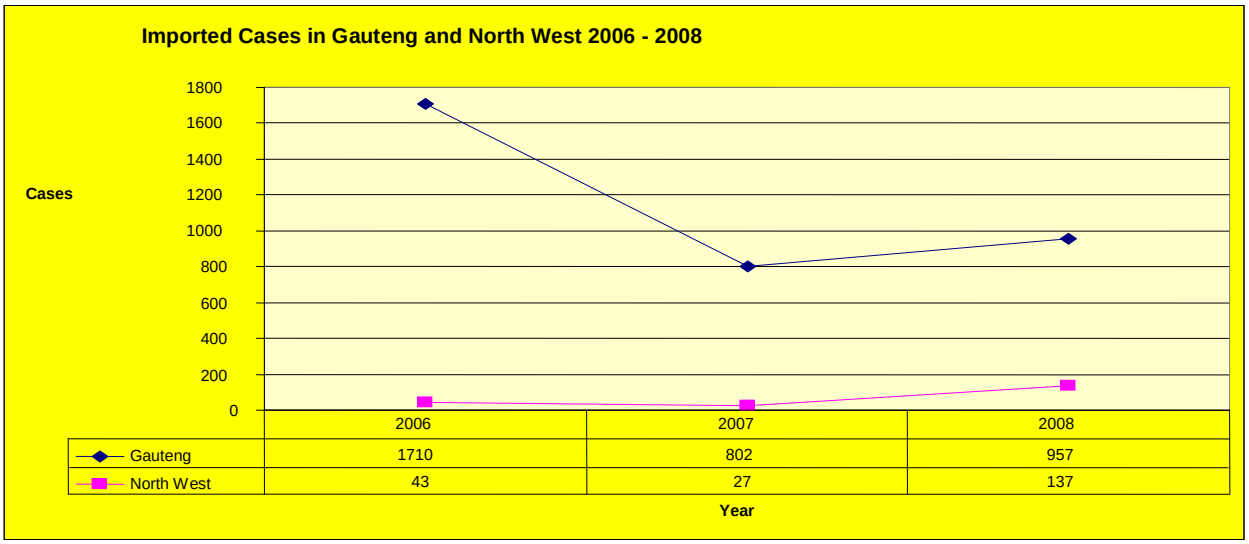


Figure 6: Local and imported malaria cases in Gauteng and North West

3.4 MALARIA PARASITES

Plasmodium falciparum accounts for the majority of malaria cases in southern Africa and is the predominant species associated with severe and fatal disease. Minor parasite species, including *Plasmodium malariae, Plasmodium ovale* and *Plasmodium vivax* occasionally occur alone or in mixed infections with *Plasmodium falciparum* (Birkholtz et al 1998; Durrheim et al, 1988;Ukpe, 1998).

3.5 MALARIA VECTORS

Following more than 50 years of successful malaria vector control in the country and the subsequent reduction of *Anopheles funestus*, malaria is currently transmitted mainly by *Anopheles*

arabiensis. Malaria transmission is strongly seasonal following the onset of warm and wet conditions in September. The peak in malaria cases occurs three or four months thereafter.*Anopheles arabiensis*are responsible for seasonal transmission in all the affected provinces. *Anopheles funestus*are rare, but has been responsible for epidemic transmission during the 1999/2000 epidemic.Insecticide resistance has been detected in both species in South Africa (Hargreaves *et al.,*2000; Masendu*et al.,* 2005).

3.6 DISEASE TRENDS

Between 2000 and 2008, malaria morbidity was reduced by 88% (64 622 and 7 796 cases) and mortality by 90% (458 and 46 deaths respectively). There has been a gradual decline in the number of cases and deaths from malaria in the past nine years (**Figure 7**).

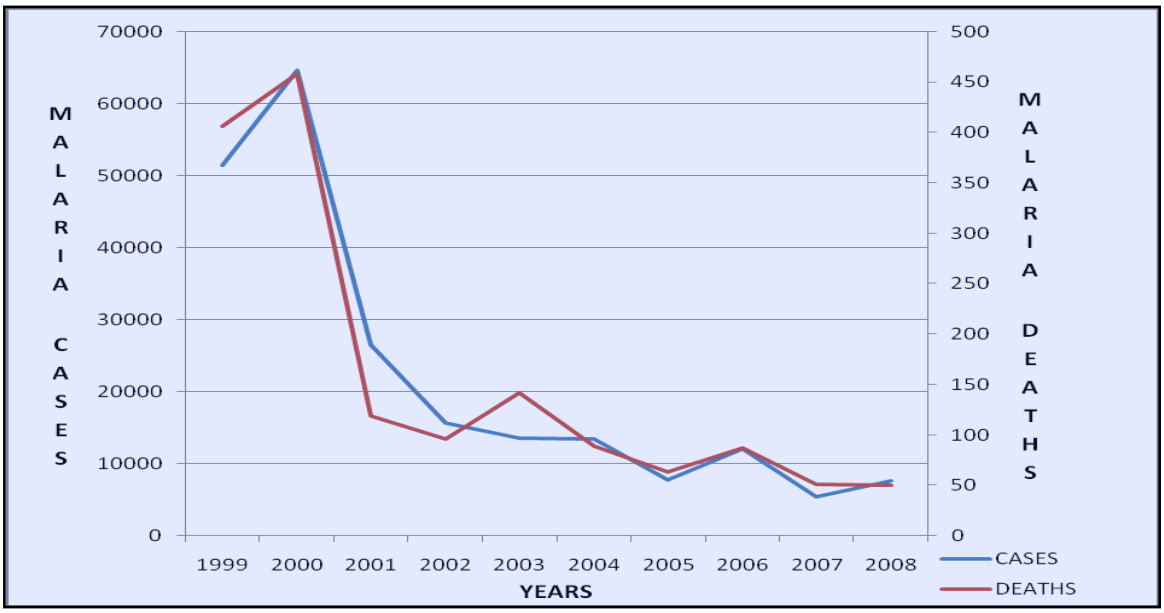


Figure 7: Malaria cases and deaths from 1999 – 2008

Since 2002, the case mortality rate has consistently decreased except in 2003 when it was 1,1%.The programme sustained Indoor Residual Spraying (IRS) coverage of more than 85% since 2006. However, as noted above, in recent years the number of imported cases from outside South Africa has increased, especially along the border areas. No effective control can take place without collaboration with neighbouring countries with high malaria endemicity.

4. PROGRAMME PERFORMANCE BY THEMATIC AREA

An overview of the progress made, gaps identified, challenges and recommendations is presented by thematic area. The thematic areas include: malaria programme management, malaria epidemiology, vector control, malaria diagnosis and case management, surveillance, monitoring, evaluation and research, epidemic preparedness, malaria advocacy and behaviour change and social mobilisation.

4.1 MALARIA PROGRAMME MANAGEMENT

4.1.1 Introduction

Since the last programme review in 1998, there has been a lot of improvement in the structure of the National Malaria control programme. The strategic leadership role of the NMCP is clearer and in June 2009, the Malaria and Other Vector Borne Diseases Directorate was formed. Prior to that, the National Malaria Control Programme fell under the Vector-borne Diseases Sub-Directorate, in the Communicable Diseases Control Directorate. At the time of the review, the Malaria and other Vector borne diseases Directorate and Communicable Diseases Directorate were headed by the Chief Director: Communicable Diseases.

4.1.2 Policy

The following policies, strategies and guidelines are available from the NMCP:

- National Malaria Policy
- Elimination Strategy (draft)
- Prevention and Treatment Guidelines
- Vector Control Guidelines
- Spray Operators Guidelines (draft)

4.1.3 Organization - National

The members of the national outbreak response team meet on a monthly basis under the chairmanship of the Chief Director: Communicable Diseases. He is also the international health regulations focal point for South Africa. At this monthly forum, malaria cases and deaths are reported and the trends and epidemic preparedness for the seasons discussed. The organisational structure for the Directorate: Malaria and other Vector-Borne Diseases, is displayed in Figure 8 below.3

[3] This structure has been proposed to but not yet formally approved by the Director General.

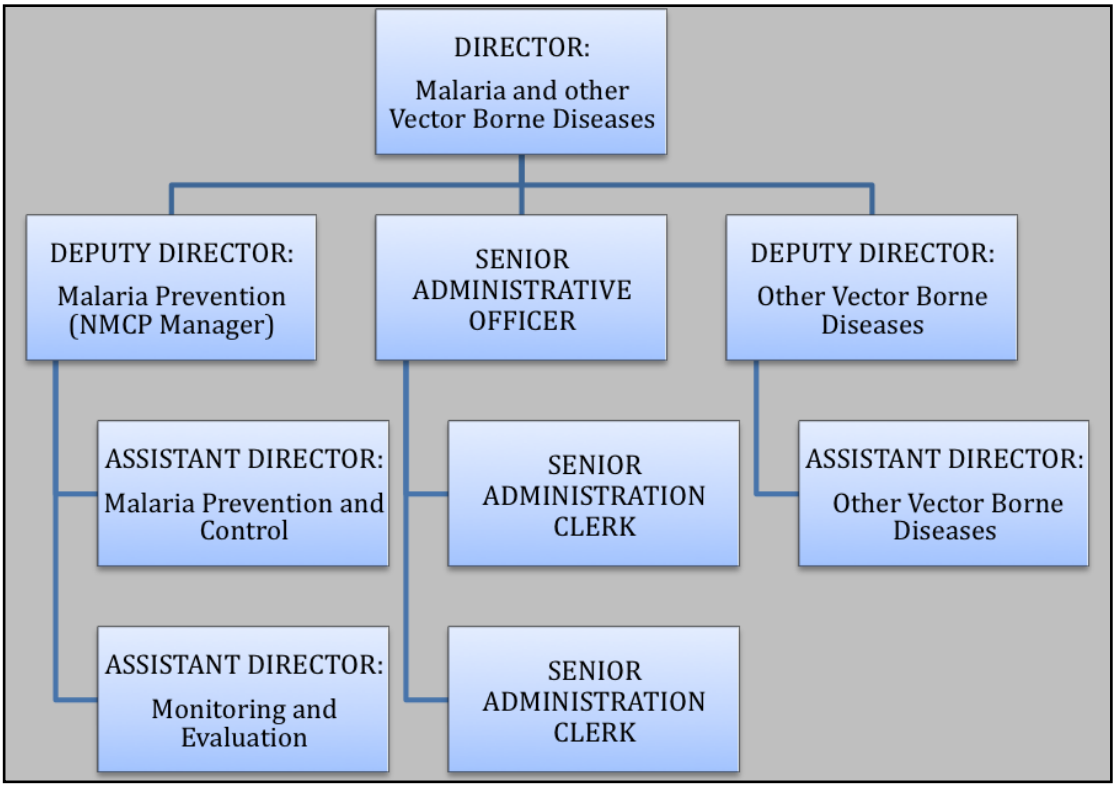


Figure 8: Proposed organisational structure of National Malaria Control Programme

The National Malaria Control Programme (NMCP) provides technical and financial support to provincial malaria control programmes. The NMCP is assisted by the WHO and research and academic institutional partners involved in training on the various interventions such as case management and vector control. Within the NDOH there are other supporting units, including Directorate: Communication; Directorate: Health Information Evaluation Epidemiology Research (HIERR), Communicable Diseases Control, Health Promotion, Communication, Monitoring and evaluation, Pharmaceutical, Environmental Health, International Health Liaison and Maternal and Child Health Directorates.

A communicable disease command and control centre was established at the NDOH in June 2009 to respond to outbreaks of communicable diseases, including malaria. This will go a long way in creating awareness among members of the public in case of epidemics.

4.1.4 Organization - Provincial

The provincial malaria control programmes (MCP) have a vertical structure at provincial and district levels in the three malaria endemic provinces. Through the primary health care structure, malaria control activities are integrated closely with healthcare facilities.The MCP organograms include provincial malaria managers, district managers and other personnel at both the provincial and district levels depending on the particular province's structure.

4.1.5 Human Resources, Training and Capacity Development

Case management workshops are conducted on an annual basis especially during the peak season. Training of spray operators involved in IRS is also done on an annual basis at the beginning of the malaria season. The training is normally conducted at the provincial level with the support of facilitators from the Provincial malaria advisory group as well as the National malaria advisory group from time to the NMCP organizes training of trainers workshops conducted with the support of WHO and other local facilitators. Entomological training is also given to the entomologists although in recent years there has been a shortage of entomologists at the provincial programmes. The high staff turnover for all the health care professionals necessitate regular training especially of the Healthcare workers in various facilities.

4.1.6 Strategic and Annual Planning

Annual review and planning meetings are conducted regularly between the national and provincial MCPs. There are meetings between the NMCP and provincial programmes to plan and track issues affecting malaria control. The annual season review meetings are used for assessment of past seasons and to inform the planning for the next year's season. Due to the increased number of imported malaria cases detected in Gauteng, this province has been included in the monthly national surveillance figures from 2009.

There is monthly reporting of malaria cases, deaths, case mortality rates and spray coverage (spraying season) from the districts to provincial levels. There are also several other reports that are available, although some of them are not recent ones. These include: impact indicator reviews, RBM surveys, quarterly reports on strategic plans, monthly reports on operational plans, monthly reporting on cases and deaths and case mortality rates. Provincial annual reports are produced and include drug and insecticide resistance surveillance reports. There is also a system in place in provinces for routine reporting on IRS delivery, commodities stock control, laboratory malaria slides and rapid diagnostic tests (RDTs) processed and confirmed.

4.1.7 Financing

The South African government has successfully controlled malaria using government resources to fund the national and provincial malaria control programmes. Some donor funds (GFATM) have been used in the cross-border collaboration between Mozambique and Swaziland.

4.1.8 Challenges

The challenges identified in programme management include:

- lack of human resource capacity and systematic organisational focus on malaria thematic areas of work in the national programme;
- a shortage of qualified healthcare workers and entomologists in the provincial malaria programmes;

- a high turnover of healthcare workers with malaria case management training, especially at hospital level;
- outdated and inadequate supply of treatment guidelines on malaria at healthcare facilities (1998 or 2003 guidelines);
- keeping malaria as priority within competing health priorities;
- lack of a Malaria Strategic Plan 2010-2018 and updated national treatment guidelines at all levels;
- inadequate alignment of the provincial malaria guidelines to the NDOH guidelines;
- weak linkage between the malaria programme and other key units in the health department such as epidemiology, health research and health promotion;
- inadequate partnership collaborating mechanism for malaria elimination (non-health sectors, United Nations (UN) Agencies (UNICEF and WHO), the United States Centers for Disease Control (CDC), and the private sector).

4.1.9 Recommendations

The following recommendations need to be implemented to sustain the gains that have been made in the program and to move the program to malaria elimination by 2015:

- recruit additional staff at the national malaria programme (e.g. epidemiology and surveillance, logistics, planning and management staff);
- recruit dedicated malaria information officers in non-endemic provinces (for elimination certification);
- provide free chemoprophylaxis in the public sector and explore the introduction of long lasting insecticidal nets (LLINs) to migrant workers by their employers;
- print and disseminate new national guidelines on prevention and treatment;
- finalise national guidelines on vector control and epidemic preparedness and response;
- increase collaboration in malaria epidemic preparedness and response (EPR) with other role-players such as the Department of Water Affairs, emergency medical services and military health services;
- update the national strategic plan in line with the elimination agenda;
- establish multi-sectoral malaria elimination committees at both national and provincial levels;
- schedule joint quarterly review and planning meetings between district health teams and district malaria teams for annual malaria plan implementation;
- use the 2010 FIFA World Cup South Africa to launch a strategy to address imported malaria and advocacy and health promotion;
- establish a national malaria reference laboratory for quality control of microscopy, rapid diagnostic tests (RDT) and polymerase chain reaction (PCR) support.

4.2PROCUREMENT AND SUPPLY MANAGEMENT

The NMCP develops specifications for all malaria commodities. Tender processes for DDT and RDTs occur at national level, while tenders for other insecticides and spray equipment are awarded and procured at the provincial level. Specification and quantifications on anti-malaria drugs and rapid diagnostics kits are done at the provincial and district level by the pharmacy and laboratory departments. Tenders are formulated and bids evaluated according to a national department supply chain policy. Quality control checks of anti-malarials are performed throughout the tender process. All anti-malarials used are registered with the Medicines Control Council (MCC).

The quality of diagnostic tests was found to be in need of improvement. There was a need for a clear policy on quality assurance and quality control for RDTs and microscopy testing.

4.3 MALARIA VECTOR CONTROL

Since the mid 1940's, South Africa had an extensive indoor residual spraying (IRS) programme with insecticides (dichlorodiphenyltrichloroethane (DDT) and later pyrethroids).IRS is still the main vector control intervention in the country.

In 1996, the South African NDOH decided to replace DDT with pyrethoids. DDT was gradually phased out in all three endemic provinces. Malaria cases increased from approximately 25 000 per year to more than 60 000 cases in 2000. An entomological investigation revealed the presence of pyrethroid resistant *A. funestus* in Kwazulu-Natal and southern Mozambique (Hargreaves *et. al*., 2000; Brooke *et. al*., 2001). Based on sufficient scientific evidence a decision was taken to re-introduce DDT in all three provinces in 2000.

Vector Control Guidelines, which mention indoor residual spraying as the main intervention with the support of larviciding and environmental management, are in place. The use of long lasting insecticide treated nets is not a key intervention in the Vector Control Guidelines but the use of LLINs as personal protection is encouraged. Integrated vector control is encouraged, but is not a key vector control strategy.

Indoor residual spraying using DDT has been the backbone for malaria control in Mpumalanga and Limpopo since 1947. All community members living in malaria risk areas have full access to spraying and participate in the process. Presently, both DDT and synthetic pyrethroids are used. The two main vector species present are *Anopheles arabiensis*, which is responsible for seasonal

transmission in all the affected provinces and *Anopheles funestus* responsible for epidemic transmission. Larval control is implemented in limited settings.

Spraying coverage of 90,6% was reached during the 2008/09 transmission season with 544 654 sprayed structures.In Limpopo, KwaZulu-Natal and North West the spray coverage for the last season was 87 to 95% (**Figure 9**). In Gauteng, there is no vector that has been identified resulting in no vector control activities apart from disinsecting aircrafts from malarious countries as the main intervention. Aircrafts from malarious endemic countries and yellow fever endemic areas are usually sprayed before they take off to South Africa.

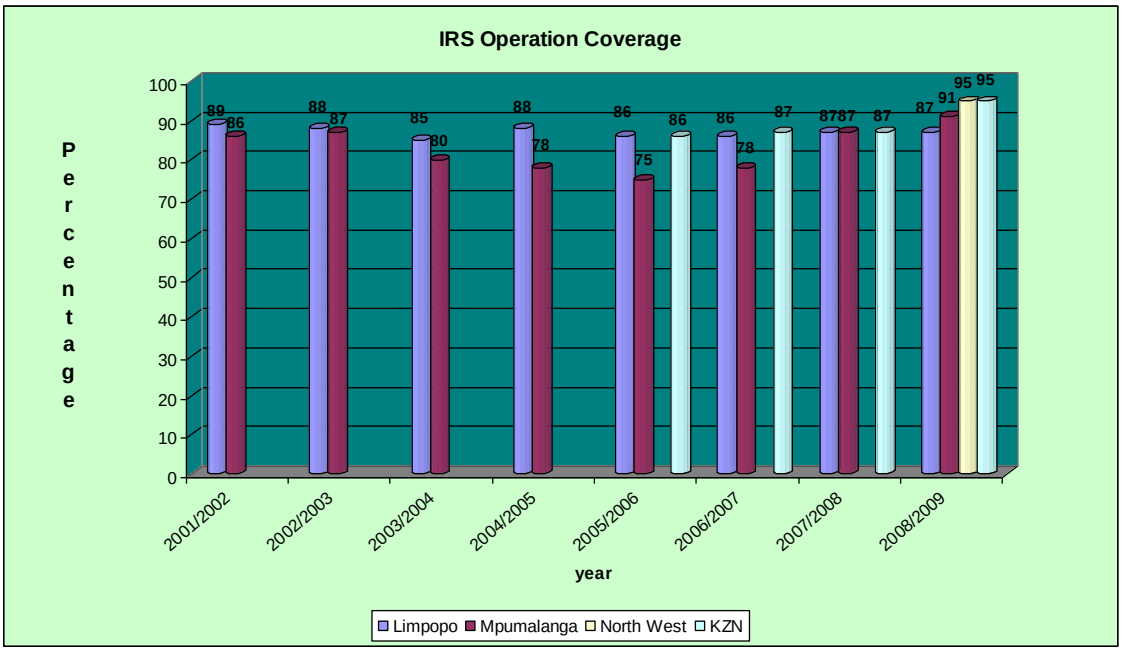
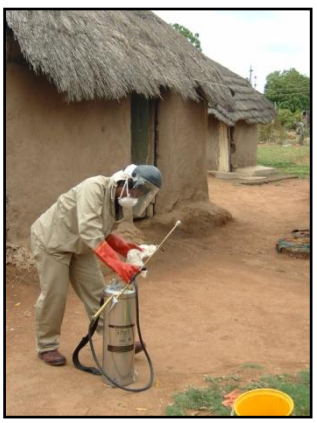


Figure 9:South Africa - IRS operational coverage 2001-2009malaria seasons

Spray operators make up the majority of human resource for malaria control capacity within vector control sections at provincial level. These spray operators are trained annually before the season to enable them to apply the insecticides effectively in homesteads. All provinces other than Northern Cape and North West follow the national guidelines for vector control. Northern Cape and North West used a variety of insecticides and spraying was carried out on an *ad hoc* basis in response to requests from the public or localised malaria outbreaks.

The insecticide is monitored for quality control through doing bioassays by exposing insects to the WHO insecticide susceptibility assays. Supervisory visits are also done and the information stored in the spray information system at provincial level. Pyrethroid insecticide resistance has been detected in both *A. arabiensis* and *A. funestus*.



Routine entomological surveillance occurs in Limpopo. Information that is recorded includes the date, place recorded and mosquitoes species.

In the malaria endemic areas 10 villages per municipality are visited per month. A baseline to perform bioassays was set at doing 10 to 15 structures per village, but during the past two seasons only 20 and 30% of the structures were done.

4.3.1 Challenges

The following challenges were identified for vector control:

- potential insecticide resistance;
- continued use of DDT against a backdrop of international pressure to eliminate its use;
- insufficient technical capacity in provincial entomology units;
- lack of updated vector distribution maps;
- use of LLINs as a supplementary vector control intervention;
- non-functioning vector sentinel sites for systematic bionomics, bioassays and insecticide resistance monitoring;
- lack of career structure for provincial entomologists.

4.3.2 Recommendations

To improve vector control the following recommendations need to be undertaken:

- recruit technical capacity in provincial entomology units;
- update vector distribution maps;
- strengthen bioassays and insecticide resistance monitoring;
- structure career paths for provincial entomologists;
- explore the introduction of LLIN;
- explore the provision of free chemoprophylaxis (public sector) and LLINs to migrant workers by employers.

4.4 MALARIA DIAGNOSIS AND CASE MANAGEMENT

The goal of malaria case management in South Africa is to reduce the morbidity and mortality due to malaria. Treatment aims at achieving both clinical and parasitological cure, as well as eliminating gametocytes in the blood in order to prevent transmission.

4.4.1 Performance Indicators and Targets

South Africa has achieved targets set at the national and regional level. During the 2008/2009 malaria season, South Africa achieved a 23,5 % decrease in malaria cases. This was better than the 10% reduction set as an annual target (from 8 580 cases in 2007/2008 to 6 560 cases in 2008/2009). There has also been a reduction in deaths from 68 deaths in 2007/2008 to 40 deaths in 2008/2009. The case mortality rate in endemic provinces has been reduced from 0,8% in 2007/2008 to 0,6% in 2008/2009. This is still slightly higher than the national target of 0,5% per year. Between 2000 and 2008, mortality has been reduced by 96% and morbidity by 88%. In the case of indoor residual spraying (IRS), endemic provinces have managed to sustain the spraying coverage to above 80% annually.

4.4.2 Fatality Rates

The current case fatality rate (total cases / total deaths) is still unacceptably high (0,8%), although it has decreased during recent years and is better in some provinces than in others. However, there is controversy over the calculation of case fatality rates that needs to be ratified. It should be noted that the CFR denominator is not based on inpatients but the total number of cases. This needs to be rectified to reflect only inpatients.

The major cause of malaria mortality and complicated malaria is late presentation to facilities and misdiagnosis.Malaria-related deaths were investigated in the three endemic malaria provinces between January 2002 and July 2004. Delays in seeking formal healthcare (especially those with HIV), malaria not suspected or tested for at PHC facilities and inadequate initial hospital assessment, with poor inpatient monitoring and management, were found to be the main reasons for mortality. (Durrheim et al 1999)

The most important element in the diagnosis of malaria in the country remains a high index of suspicion in a patient with a history of fever and residence in or visits to a malaria area. Suspected cases are subjected to confirmatory tests. Rapid diagnostic tests (RDTs) are used for immediate confirmation while laboratory diagnosis by microscopy of thin and thick blood films for malaria parasites is the gold standard confirmatory test.

4.4.3 Guidelines

National and/or provincial guidelines are available for the treatment of uncomplicated malaria, severe malaria, and malaria in special risk groups like pregnant women and very young children. The basis of these guidelines is the WHO's guidelines for the treatment of malaria.Three versions of the national guidelines have been in use since 1998. A new one has recently been updated and is about to be launched.

Uncomplicated malaria can be treated at a primary healthcare (PHC) level in the malaria transmission areas according to national guidelines.Malaria diagnosis and treatment is free of charge at all levels of public healthcare facilities in malaria areas. Complicated cases are still treated with quinine.

In non-endemic provinces, malaria cases aremanaged in district and regional hospitals while PHC facilities refer all their cases. Quinine and Doxcycline are the principal line for first line treatment and severe cases managed in intensive care units (ICUs). It was also found that Artemisinin-based Combination Therapy (ACTs) are not on code, hence not being used in non-endemic provinces. Follow-up systems are not well established because some patients do not have permanent residence, making follow-up difficult. Non-endemic provinces have morbidity and mortality audits on a monthly basis.

The equipment and materials for the parasitological diagnosis of malaria are available in healthcare facilities at all levels of the general healthcare system. The recommended drugs for effective treatment of malaria are available in healthcare facilities at all levels of the general healthcare services and no stock-outs have been experienced.

In Mpumalanga, the MCP is providing regular support visits to most healthcare facilities, especially PHC facilities, to ensure sustained availability of quality malaria service delivery. Only one of the four hospitals visited by the review team was found not to be receiving enough support visits from the MCP. There appears to be a high level of community awareness of malaria in the malaria areas and systems are in place at healthcare facilities for outbreak response.

4.4.4 Challenges

The following key challenges have been identified:

- lack of established referral system in some provinces and transport delays makes it difficult to transfer malaria patients with severe complications timely;
- inadequate integration of laboratory services into the malaria programme;
- no structure for home management of malaria;
- chemoprophylaxis is not currently available in the public sector;
- ACTs not used in non-endemic areas – non-compliance with policy in some endemic areas;
- nationwide use of AL on all uncomplicated cases is needed;
- strict policy on treatment of malaria cases at community level (field surveillance agents unable to treat confirmed cases);
- lack of national quality control system for microscopy and RDT;

- lack of defined national follow-up system for malaria out patient department (OPD) and in-patients;
- inadequate patient education and information, education and communication (IEC) materials in hospitals;
- inadequate malaria wall charts to support patient management;
- poor access for chemoprophylaxis for low class travellers.

4.4.5 Recommendations

The recommendations to improve case management are as follows:

- Specific national malaria reference laboratory for quality control of microscopy, RDT and PCR support;
- strengthen training and follow up support of use of RDT in PHC facilities, hospitals and surveillance agents
- improve drug efficacy monitoring through sending all positive RDT to central reference laboratory
- regular diagnosis and case management review and training for nurses and doctors in PHC facilities and hospitals
- district health team confidential inquiry of all malaria deaths and quarterly review of admitted severe case management.

4.5 Advocacy, BCC, IEC and Social Mobilisation

4.5.1 Introduction

The key issues for health promotion include improved case management, vector control using indoor residual spraying and environment management, malaria epidemic preparedness and malaria advocacy at all levels.

4.5.2 Policy and Guidance

The national malaria control programme developed a health promotion strategy that compliments the national strategic plan for implementation at provincial level. The main objectives of the health promotion strategy are: 1) to raise the profile of malaria among politicians, potential partners, community leaders and other stakeholders 2) to improve the flow (dissemination) of information to key target audiences at national community and household levels through a planned and systematic series of activities and channels 3) to influence positive behaviour change among target audiences with regard to treatment seeking and other critical malaria related behaviour.

4.5.3 Organisation

The Cluster: Communicable Diseases at national level employs a health promotion officer. The officer is responsible for health promotion within the cluster and to assist with malaria and other vector-borne diseases. The cluster works closely with the Directorate: Health Promotion and it provides assistance on a regular basis. At provincial level the malaria control programme either employs their own health promotion officers or health promotion forms part of the communicable disease units.

4.5.4 Successes and Best Practices

All provinces reported substantive progress on malaria health promotion. The programmes have trained community health workers who have been instrumental in the information dissemination and development. The IEC materials used include: radio talk shows, posters, leaflets, pamphlets and videos that are also translated into local languages, media both print and radio and community mobilisation campaigns. At community levels there are community sessions, awareness campaigns and exhibits at community events, e.g. shows and sport matches. In some circumstances schools and household visits are conducted. Surveys have also been conducted to assess community on knowledge, attitudes and practice of malaria prevention and control.

Some of the major campaigns that have been implemented over the years include the selection of a champion for malaria, commemorating World Malaria Day as well as SADC Malaria Week, development of information, education and communication (IEC) messages and materials and conducting the knowledge, attitudes and practice (KAP) surveys.

Provincial level local musicians and sports stars play a major role in advocating for malaria control. The musician Yvonne Chaka Chaka is very active in Limpopo and to a lesser extent in Mpumalanga.

World Malaria Day is commemorated at a very low profile and usually consists of a press release explaining the malaria situation in South Africa. During April when World Malaria Day is celebrated the malaria season in South Africa is coming to an end. This is considered a missed opportunity in South Africa to continue malaria advocacy even outside the season and also throughout all the provinces. This is also a missed opportunity since it falls close to the holiday season where people travel extensively. SADC Malaria Week is celebrated during the second week of November each year. This is mainly done in the three malarious provinces and the big event is alternated between Kwazulu-Natal, Mpumalanga and Limpopo. As part of the political commitment, the Minister of Health, accompanied by some SADC Health Ministers, usually attends the events.

4.5.5 Issues and Challenges

The challenges identified for advocacy and health promotion indicate:

- a lack of continuous awareness throughout the year outside the malaria season
- shortage of dedicated health promotion officers for malaria
- no specific budget for malaria IEC and advocacy
- absence of sub-committee on health promotion to oversee activities. In most cases ad hoc meetings take place for planning of events or during malaria outbreaks;
- lack of malaria health promotion activities and materials at the district and hospital leveldespite good advocacy coverage to communities, especially in the endemic areas and places with large numbers of imported cases;
- lack of health promotion co-ordination at sub-district levels and lack of participation of partners at the local levels especially NGOs;
- lack of monitoring the quality of training of community health workers;
- in Mpumalanga, high awareness is not being translated into acceptable practice, e.g. refusals of IRS, this compromises spray coverage;
- inadequate malaria posters and pamphlets in some areas;
- lack of focus on travellers and migrants with imported malaria;
- lack of sufficient IEC materials for non-endemic areas.

4.5.6 Conclusions and Recommendations

In order to achieve maximum behaviour change communication benefits, the following recommendations were made:

- A focused health promotion strategy and plan forhigh risk group: Migrants and travellers with imported malaria needs to be developed
- There is a need for Surveillance agents/community health workers in informal settlements,
- Malaria bill boards should be placed on ports of entry and exits and on long distance buses and taxis etc
- Use 2010 to launch strategy to address imported malaria and launch advocacy and health promotion to support malaria elimination by 2013 (certification)
- Establish partnership forum for specific areas such as advocacy and health promotion

4.6MALARIA IN PREGNANCY

The incidence of malaria in pregnancy has been found to be low, with only four cases of congenital malaria being reported (Moran et al 1999). There are no specific guidelines for the management of malaria in pregnancy, but pregnancy is covered in the national guidelines for treatment of malaria. Malaria during pregnancy is considered to be severe malaria and is therefore treated as such.

Intravenous Artesunate will soon be available on a patient named basis for severe malaria in patients over the age of 12 years. Pregnant women in their first trimester are currently excluded.

4.7 SURVEILLANCE, MONITORING AND EVALUATION

Surveillance is the routine collection of malaria data from district to provincial and then to national level. The provinces do both active and passive surveillance. Monitoring and evaluation is done regularly which results in an annual review of each programme.

4.7.1 Drug Resistance Monitoring

In 2001, a study regarding therapeutic efficacy of sulfadoxine-pyrimethamine (SP), was carried out in the Tonga district in Mpumalanga. One hundred and nineteen patients presenting to a sentinel surveillance clinic were recruited according to the WHO criteria. Patients were treated with a single oral dose of SP and the response of infection to treatment was monitored routinely from day one to day 42 post-treatment. One hundred and ten patients completed follow-up to day 42 or evidence of clinical or parasitological failure. The cure rate at day 42 was 93,6% (103/110). Two patients (1,8%, RII) were early treatment failures on day three, while recrudescence (4,5%, RI) occurred in five patients on day 28 (N = 3) and on day 42 (N = 2) (Mabuza et al*.,* 2001).

In 2005, a similar study was conducted to assess the therapeutic efficacy of SP after five years of use as a first-line treatment of uncomplicated *Plasmodium falciparum*. This study was again done in Mpumalanga, at Mangweni and Naas public healthcare clinics (Mabuza et al., 2005).

An in vivo therapeutic efficacy study of patients with uncomplicated *P. falciparum* malaria treated with a single oral dose of SP, with response to treatment monitored clinically and parasitologically on days 1, 2, 3, 7, 14, 21, 28 and 42. Of the 152 patients recruited sequentially, 149 (98%) were successfully followed up for 42 days. One hundred and thirty four patients (90%) demonstrated adequate clinical and parasitological response. Of the 15 patients (10%) who failed treatment, two (1,3%) had an early treatment failure, and polymerase chain reaction confirmed recrudescent infection in all 13 patients (8,7%) who had late parasitological (N = 11) or clinical (N = 2) failure. Gametocyte carriage was prevalent following SP treatment (84/152) and this has increased significantly since implementation in 1998 (relative risk 2,77 (confidence interval 1.65-4.66); p = 0.00004).

In 2006, only half of the required patient sample size for drug resistance studies in Limpopo and Mpumalanga were achieved - and in KwaZulu-Natal, the 2004 drug resistance monitoring study failed to recruit any patients Barnes, et al. (2006).Thus drug resistance monitoring in South Africa through recruitment of an adequate sample size in any sentinel clinic in any province is no longer feasible.

4.7.2 Surveillance Systems

The surveillance system is functioning well in the malaria endemic provinces, especially in the provinces that have malaria information officers. Malaria case notification is currently done through two systems that run parallel to each other both provincially and nationally. The three malarious provinces use the malaria information system (MIS) developed by the Medical Research Council (MRC). The epidemiology units in the provinces use the district health information system (DHIS) that relay the data to the national epidemiology unit within the Cluster: Health Information Evaluation Epidemiology Research (HIEER). At this level, epidemiological comments on malaria are developed and printed. The latest epidemiological comment was printed in 2008. There is also a 2007 national surveillance report.

The provincial system in place also covers routine IRS delivery reporting, commodities stock reporting, laboratory reporting of malaria slides, RDT processed and confirmed.

In other provinces and at national level, there are no malaria information officers and therefore the malaria programme managers handle the malaria data. Malaria is regarded as a notifiable disease and provinces conduct weekly active and passive surveillance on cases and deaths and send the information to the national department on a monthly basis. So far active surveillance is being reported from KwaZulu-Natal and Mpumalanga.

The surveillance information is used to identify epidemics at the early stage. The data flows from facilities and sub-districts to districts, to provinces and to NDOH. Malaria notification from non-malarious provinces is poor, but information is available.

The Global WHO Malaria Database was adopted from the WHO and is being installed in Limpopo, Mpumalanga, KwaZulu-Natal, Gauteng and North West. This will not replace the current systems but will assist in summarising the information. Information officers from NDOH, Limpopo, Mpumalanga, KwaZulu-Natal, Gauteng and North West were trained on utilising the WHO database.

At national level (NMCP) there is no MIS database that collates all the data from the provinces. The NDOH and MRC have malaria websites, but data cannot be accessed from there. There is currently no web-based reporting, and malaria staff members at lower levels do not all have access to computers, e-mail and the internet.

4.7.4 Sentinel sites

Sentinel sites have been set up for entomological data collection in Tzaneen (Limpopo), Nelspruit (Mpumalanga) and Richards Bay and Jozini (KwaZulu-Natal). A computerised case monitoring system is used to capture all malaria case data reported in each region. In addition,

a spraying information system is used by each site to capture all information related to spraying activities within each region. The MRC has assisted with the training of an information officer in the use of the systems and basic Geographical Information Systems (GIS) techniques in each of the malaria affected provinces. GIS is used to map and monitor spatial trends and changes. Thresholds have been developed in order to predict the onset of epidemics and put into action epidemic response measures.

4.7.5 Surveys and research

A malaria survey was conducted in the three malarious provinces (KwaZulu-Natal, Limpopo and Mpumalanga) in March 2006. The survey formed the basis of monitoring and evaluating the malaria control programme through the use of indicators. The NDOH is currently developing a monitoring and evaluation framework to be used for monthly provincial reporting. An action plan was drafted to start collecting malaria data needed for surveillance as well as monitoring and evaluation. The health facility prevalence surveys are conducted in the provinces and reports are available in the provinces.

South Africa has research institutions and national universities with malaria projects and programmes. Malaria research was first started in the 1980s at the MRC, a research institute for diseases in a tropical environment. The malaria research programme was established in 1992. The MRC has projects that focus on drug-resistance monitoring, entomology, insecticides resistance and other projects. The University of Pretoria and the University of Witwatersrand are other examples of universities with malaria projects and research.

Regional and international collaboration in malaria research is in place. The London School of Hygiene and Tropical Medicine and the Swiss Tropical Research Institute are collaborating with the MRC on LSDI, insecticide resistance monitoring, anti-malarial drug resistance and the malaria information system. Data sourced by malaria research programmes from health facilities is sent to district managers, provinces and the NMCP.

4.7.6 Challenges

The challenges for surveillance, monitoring and evaluation include the following:

- despite having several sources of malaria information in the country, the central point (the NDOH) does not have a database with all the necessary information;
- the information on cases, deaths and case fatality rates, national and provincial reports are only available for some years and seasons;
- no collaboration and co-ordination between the health department and other stakeholders in data collection and dissemination;

- incorrect sources of infection recorded in endemic areas especially from illegal immigrants, making it difficult to perform case investigation in such circumstances;
- changing transmission dynamics that might increase propensity for epidemics;
- a lack of population projections at lower geographical levels;
- no standard data collection from across the provinces;
- malaria indicators for reporting do not include suspected malaria cases tested and slide/RDT positivity rate and number of inpatients;
- untimely reporting from provinces to the NDOH;
- inadequate analysis and use of malaria data at all levels;
- no malaria information officer and data entry clerk at national level;
- no reporting system in place on combination drugs and RDT consumption;
- insufficient drug efficacy monitoring due to low case numbers.

4.7.7 Recommendations

The following recommendations are being suggested in order to strengthen surveillance systems, monitoring and evaluation and research:

- the need for recording of imported cases and their source
- regular training of data captures (at least twice a year)
- redesigning, standardising and regular updating of the MIS to accommodate changes across the provinces
- regular training of information officers (at least twice a year)
- developing a central database at national level that houses all MIS from the provinces
- strengthen communication and co-ordination between stakeholders and the health department to reach the 2015 targets.

4.8 EPIDEMIC PREPAREDNESS AND RESPONSE

4.8.1 Introduction

Malaria in South Africa is seasonal, unstable and prone to epidemics. There is a high vulnerability to epidemics or outbreaks due to a combination of factors such as the ecological and climatic factors associated with the primary vector *A. arabiensis.* Aggressive malaria control has rendered many areas malaria free but the vectors remain with potential for malaria re-introduction and re-invasion.

4.8.2 Policy and Guidance

During the peak malaria season cases are reported daily and weekly by telephone and fax to provinces. Charts on cases recorded and epidemic thresholds are maintained at health facility,

district and provincial level. The thresholds need to be updated and national thresholds need to be established.

Each province has developed their own thresholds and at health facilities in high-risk areas threshold charts have been put in place for daily monitoring. A three-tier constant threshold was proposed in 2003 to suite the provincial situation - one for early warning of an outbreak, one for determining localised outbreaks and one for generalised epidemic at provincial level, which would require external support.

There is no specific malaria focal point for epidemic preparedness and response within the national and provincial malaria control programs.

Draft malaria epidemic guidelines are available but needs to be updated and finalised. An informal malaria epidemic sub-committee consisting of the National Institute for Communicable Diseases (NICD), Medical Research Council (MRC) and South African National Defence Force (SANDF) meets monthly during the high risk months to review the malaria situation and recommend action required to the national communicable disease control outbreak team.

There is no summary table recording all malaria epidemics in the country. Only a file of epidemic investigation reports exists. No maps of epidemic prone localities with the malaria endemic districts based on past record of epidemics exist. There is at present no collaboration with the National Meteorological Services and with the regional drought monitoring centres to conduct medium and short term forecasting of malaria epidemics.

All epidemic risk areas are targeted for indoor residual house spraying before the transmission season. There is no use of LLIN for reducing vulnerability for epidemics.

There is no malaria specific EPR plan at the national level but EPR plans are in place at provincial level, which are updated every year before the start of the malaria season. The EPR plans are collected to form a nation EPR plan annually.

At national level there is no malaria specific epidemic funds set aside but when required this is accessed rapidly under the overall national communicable disease outbreak response. Malaria emergency supplies for rapid response to outbreaks are kept at the provincial level.

Due to successful control and lack of frequent exposure to infection all age groups are at risk of severe clinical disease and there is a propensity for epidemics. In the past three years there was an epidemic in Limpopo for which an assessment was done. All epidemics are investigated and responded rapidly within a week.

4.8.1 Challenges

The challenges for epidemic preparedness and response indicate that:

- Epidemic investigation does not include enough entomological investigation to establish if the source of infection is due to local transmission or to imported cases with secondary transmission;
- inadequate forecasting and collaboration with South African Meteorological Services;
- a lack of a national early warning system for epidemics;
- irregular provincial and district outbreak response team meetings.

4.8.2 Recommendations

The following recommendations indicate that epidemic preparedness and response need to:

- strengthen entomological investigations during malaria epidemics;
- work in partnership with the South African Meteorological Services to obtain climate data and set up an early warning system for malaria epidemics;
- strengthen outbreak and response teams at district level.

5. Conclusions and Key Recommendations

The review has identified that each province is at a different level in moving towards pre-elimination. In light of the variable disease profiles across provinces, the tablebelow summarises the strategies and interventions that should be employed by each province to reach malaria elimination.

Strategies and/or Interventions	L+MPU	KZN	NW+GP
Programme management			
Effective programme planning and management	√	√	√
IEC and advocacy and community involvement	√	√	√
Efficient health facility based surveillance system including private sector	√	√	√
Epidemic preparedness and response	√	√	√
Good procurement and supply chain management system	√	√	√
Good quality control and assurance system	√	√	√
Continuous training and supportive supervision	√	√	√
Monitoring and evaluation (annual and strategic)	√	√	√
Vector control/personal protection			
IRS (universal coverage)	√	√	
IRS (universal coverage in hotspots – focal regular)			
IRS (focal coverage – reactive to outbreak threat)			√
Entomological investigation and focal larviciding	√	√	√
Aircraft spraying			√
Containers fumigation			√
LLIN universal coverage	√		
LIIN focal (hotspots) and high risk groups		√	
Surveillance			
Case based notification and active contact tracing using PCR (+ radical treatment)			√
Case based notification and active contact tracing using RDT + non radical treatment	√	√	
Chemoprophylaxis and repellent			
Pregnant women and other resident high risk groups	√	√	
Travellers to Limpopo, Mpumalanga and KwaZulu-Natal or to malaria endemic countries			√
Case management			
Non-radical (ACT) treatment for confirmed cases	√	√	
Radical treatment (ACT+ primaquine) for confirmed cases			√

Key : L = Limpopo ; MPU = Mpumalanga ; NW = Northwest, GP = Gauteng, KZN = KwaZulu Natal

6. References

1. Birkholtz L, Visser L, Louw AI, van der Linde R, Brink AY. The prevalence of mixed-species and antifolate-resistant malaria infections in Mpumalanga. South African Medical Journal 1998; 88(1): 58-60.

2. Department of Health South Africa. Guidelines for the treatment of malaria. 1996. Pretoria.

3. Durrheim DN, la Grange JJ, Govere J, Mngomezulu NM. Accuracy of a rapid immunochromatographic card test for *Plasmodium falciparum* in a malaria control programme in South Africa. Trans R Soc Trop Med Hyg 1998; 92: 32-3.

4. Hargreaves K, Koekemoer LL, Brooke BD, Hunt RH, Mthembu J, Coetzee M. 2000. Anopheles funestus resistant to pyrethroid insecticides in South Africa. Medical and Veterinary Entomology, 14: 181 – 189

5. Mabuza A, Govere J, Durrheim D, Mngomezulu N, Bredenkamp B, Barnes K, Sharp B. Therapeutic efficacy of sulfadoxine-pyrimethamine in uncomplicated *Plasmodium falciparum* malaria 3 years after introduction in Mpumalanga. South African Medical Journal 2001; 91(11): 975-8.

6. Mabuza A, Govere J, la Grange K, Mngomezulu N, Allen E, Zitha A,Mbokazi F, Durrheim D, Barnes K. Therapeutic efficacy of sulfadoxine pyrimethamine for *Plasmodium falciparum* malaria. South African MedicalJournal 2005; 95: 346-9.

7. Barnes KI, Little F, Smith PJ, Evans A, Watkins WM, White NJ. Sulfadoxine pyrimethamine pharmacokinetics in malaria: paediatric dosing implications.Clin PharmacolTher 2006; 80: 582-96.

8. Masendu HT, Hunt RH, Koekemoer LL, Brooke B.D. 2005. Spatial and temporal distributions and insecticide susceptibility of malaria vectors in Zimbabwe. African Entomology, 13: 25-34.

9. Moran NF, Couper ID. Congenital malaria in South Africa – A report of four cases. South African Medical Journal 1999; 89(9): 943-6.

10. Ukpe IS. *Plasmodium ovale* in South Africa. Trans R Soc Trop Med Hyg 1998; 92: 574.

7. Annexures

ANNEXURE A – POLICY BRIEF

Republic of South Africa
Malaria Program Performance Review
Towards a Malaria Free South Africa
September 2009
Policy Brief

I. Purpose

The main purpose of the review was to assess the current status of each of the key interventions (case management, health promotion, vector control, surveillance and epidemic preparedness and response as well as programme management, of the malaria control programme in South Africa and determine the needs for programme re-design towards malaria elimination. The review identified major achievements, best practices and lessons learnt, critical issues, priority problems, and investigated the causes of the problems and proposed solutions.

The major findings and the recommendations arising from the strategic review are summarized in this Policy Brief. The Policy Brief is not a memorandum of understanding and is not legally binding. The Policy Brief is a statement of the commitment of partners, to work together for the implementation and follow up of recommendations towards the achievements of malaria elimination in South Africa.

II. Background

During the April 2007 African Union meeting held in Johannesburg the Africa Malaria Elimination Campaign was launched. In November 2007 SADC developed a malaria elimination strategy and a strategic plan for countries earmarked for malaria elimination. South Africa is one of the countries that was earmarked for elimination by the AU and SADC. A decision was taken by the National Department of Health, to conduct a Malaria Programme review to assess the malaria control status, and use the findings to develop the malaria strategy for elimination.

The review process started with a consultative process whereby the National Malaria Control Programme briefed Malaria Advisory Group (MAG) and stakeholders meetings in April 2009 on the concept of malaria programme review. During this meeting, members agreed to conduct a Malaria Programme Review in order to assess the progress in the implementation of malaria control programme in the country. The overall objective was to review the current malaria policies, operations and health systems with key indicators and targets.

The specific objectives of the Malaria Programme Review (MPR) were:

(i) To review the implementation of the policies and program interventions within the context of the health system and the national agenda;
(ii) To review the malaria epidemiology (endemicity, seasonality, parasite, vector situation) in South Africa;
(iii) To assess progress towards the global, SADC and AU targets which include malaria elimination by 2015 in South Africa;
(iv) To review the current program service delivery systems, performance and challenges; and

(v) To define the next steps to improve Programme performance in line with elimination strategy.

The review was carried out in two phases the first was the planning phase where stakeholders met to plan. The task force was established to take the process through. Stakeholders were divided into thematic areas, namely to include the following interventions vector control; case management; surveillance, monitoring and evaluation and research; advocacy and information education and communication (IEC), epidemic preparedness and response, and programme management.

The second phase consisted of an in-depth desk review and field visits. The in-depth desk review of reports, research papers, strategic plans and operational plans for each thematic area were undertaken which formed the basis of the review report at both national and provincial level. Each team developed thematic reports. The Joint field visits to national and the provincial level were conducted by internal team and external reviewers consisting of experts on malaria from South Africa, neighbouring countries as well as from WHO. The field visits were conducted in the five provinces including at national level from 31 August to 11 September 2009.

III. Key findings and Recommendations

1. Malaria Epidemiology

The following section describes the epidemiology of the malaria in South Africa.
About 10%, which is 4,9 million people of the total population of South Africa live in a malaria risk areas (Stats SA, 2009) in the three provinces of Mpumalanga, Limpopo and Kwa-Zulu Natal. The communities living in endemic areas are all at risk. High-risk groups for malaria appear to be travellers and migrants to and from other endemic countries. Also immigrants that is not immune. Pregnant women and children under five are also considered risk groups.

Plasmodium falciparum accounts for the majority of malaria cases in southern Africa and is the predominant species associated with severe and fatal disease. Following more than 50 years of successful malaria vector control in the country and the subsequent eradication of the vector *Anopheles funestus*, malaria is currently transmitted mainly by *Anopheles arabiensis*. Malaria transmission is strongly seasonal following the onset of warm and wet conditions in September. Peaks in malaria cases occur after a time lag of three or four months. Between 2000 & 2008, mortality reduced by 96%; morbidity by 88%.

Action points

The following action points need to be implemented.

1.1. Each malaria province has to redefine the stratification of districts according to their current malaria incidence.
1.2. After stratification a sub-district with more than 2/1000 cases should implement the strategy of reducing malaria to zero by 2012
1.3. Areas that is already in pre-elimination with less than 1/ 1000 cases and sporadic transmission should move to zero by 2010
1.4. The malaria free zones with no local transmission to sustain zero case and prepare for recognition of malaria free zone.

2. Malaria promotion: Advocacy, Information Education Communication/ Behavior Change and Community mobilization

The Directorate Health Promotion works very closely with Communicable Disease Control (CDC) Cluster and is available to assist with all requests. At provincial level the malaria control programme either have their dedicated officers or the health promotion is integrated with that of CDC. The malaria control programme developed a health promotion strategy.

The malaria programmes have malaria pamphlets, and posters. They also use the local stations to do radio spots to make announcements on malaria especially before the season start. Materials and teaching aids were developed for the community health workers to assist them when they visit communities. The communities in endemic areas have a high awareness of malaria. The Medical Research Council (MRC) undertakes regular studies to establish communities' Knowledge, Attitude, Behavior and Practices (KABP) to support the implementation of the different interventions. There is significant population movement across the borders and this requires intense IEC focused on travelers and migrants with imported malaria. The involvement of health promotion officers in malaria unit at all levels is inadequate.

Action points

The Following key action points need to be implemented. There is a need to:

2.1 Strengthen the involvement of health promotion officers in malaria elimination programme.
2.2. Develop focused health promotion strategy and plan for high risk group especially the migrants workers and travellers with imported malaria.
2.3. Develop sufficient IEC materials adapted to the malaria elimination programme.

3. Malaria Prevention: Vector control

This is one of the malaria interventions to prevent the vector from biting the people in the community. The coverage for Indoor Residual Spraying (IRS) has been sustained at more than 85% for the past few years. The MRC has supported the provincial programmes by mapping the IRS coverage. The vector control has been successful in that the number of *A. funestus* collected is almost zero and the density of *A. arabiensis*collected is also low. The provinces have an IRS manual and training manuals which is being used during the annual training of the spray operators. Training of entomologist is carried out on an ad hoc basis. The entomology can make use of the reference support from the National Health Laboratory Services (NHLS), National Institute of Communicable Disease (NICD) and the MRC. There is a draft vector control guideline which is being used by the provinces to implement vector control management. But there is non-use of supplementary vector control interventions and non-functional vector sentinel sites for systematic bioassays and insecticide resistance monitoring and vector bionomics in some provinces.

Action points

The following action points need to be taken into consideration:

3.1 Establish a mechanism of managing a potential insecticide resistance
3.2 Explore the introduction of Long lasting Insecticide Nets (LLIN) and larviciding as a supplementary vector control intervention
3.3 Develop Integrated Vector Management (IVM) guidelines which will incorporate all the different methods to improve vector control.

4. Malaria Prevention: Epidemic Preparedness and Response (EPR)
This is one of the key interventions for malaria control.

During the malaria season the provinces carry out daily and weekly surveillance. The health facility in high risk areas has charts indicating their thresholds as well as the district and provincial thresholds exist. Annually before the malaria season starts, the endemic provinces go through their EPR checklist and update their epidemic preparedness plan. Malaria is one of the communicable diseases included in the National, provincial and district outbreak response teams. As the country moves closer to the elimination of malaria, the potential for malaria outbreak will increase and currently there is no historical tracking and mapping of epidemics, lack of updated specific guidelines on malaria EPR, inadequate forecasting and collaboration with South African Meteorological services and lack of national early warning system for epidemics.

Action points

The following key action points need to be considered.

4.1 Perform historical tracking and mapping of epidemics
4.2. Strengthen forecasting and collaboration with South African Metrological services
4.3 Establish national early warning system for epidemics
4.4 Update the national, provincial and district outbreak response team

5. Malaria diagnosis treatment and cure

To control malaria prompt diagnosis and treatment is important.

There is high access to passive case detection in clinics and hospitals in endemic areas. Active case detection is done weekly at household level or around 2km radius KwaZulu-Natal (KZN) following a positive notification. Malaria diagnosis in South Africa is definite with either RDT or microscopy before treatment is administered. The first line of treatment in the endemic provinces is combination therapy whereas in malaria free provinces the first line of treatment is quinine and doxycycline. Good management of severe malaria cases was also observed. Severe malaria cases were treated with quinine intra-vascular (IV) and intra-muscular (IM).The provincial malaria programmeshave Morbidity and Mortality Audits on monthly basis to assess quality of care. Malaria diagnosis and treatment is free of charge at all levels of public health care facilities in malaria areas. The quality control and assurance of microscopy and RDT is not in place and ACTs are not used in non-endemic areas as recommended by the national policy. Field surveillance agents are unable to treat confirmed cases due to the strict policy on treatment of malaria cases at community level. There is no well defined national follow up system for malaria OPD and patients and the access for chemoprophylaxis for low class travellers is very poor.

Action points
The following key action points need to implemented for case management:

5.1 Introduce a national quality control system for microscopy and RDT
5.2 Implement national policy on combination malaria therapy country wide in endemic and non-endemic areas
5.3 Lobby for revision of treatment policy for malaria cases at community level. (Field surveillance agents unable to treat confirmed cases.)
5.4 Strengthen national follow up system for malaria OPD and patients
5.5 Explore the provision of free chemoprophylaxis (public sector) and LLINs to migrant workers by employers

6. Surveillance, Monitoring and Evaluation and operational research

All malaria cases in South Africa are confirmed and diagnosed by either Rapid Diagnostic Test (RDT) or microscopy. The Medical Research Council (MRC) supports the malaria information system in the three malarious provinces. The malaria cases are reported daily during the epidemics and during the season, and weekly throughout the year. The malaria case investigators also undertake active surveillance when cases are confirmed. The malaria information system has a comprehensive data on the Indoor Residual Spraying for the three endemic provinces. The provincial programmes in endemic areas have provincial and district information officers. The provinces produce annual reports from which the national report for South Africa is produced. A malaria monitoring and evaluation framework was developed for the provinces. However malaria indicators for reporting don't include suspected malaria cases tested and slide/RDT positivity rate and no hospital admissions to assess progress and performance of the programme. Also there is untimely reporting from provinces to NDOH and MRC, inadequate clinical and epidemiological analysis of data at all facilities, districts, provinces and at central level for more effective patient and program management, lack of national malaria information officer and data entry clerk, no reporting system on combination drugs and RDT consumption and lack of regular vector and drug efficacy monitoring.

Action points

6.1 Malaria reporting to include suspected malaria cases tested and slide/Rapid Diagnostic Team (RDT) positivity rate and number of inpatients
6.2. Improve the analysis and use of malaria data at national, provincial and district
6.3 Recruit dedicated malaria information offices in non-endemic provinces (for elimination certification)
6.4 Develop a national Monitoring & Evaluation Framework
6.5 Joint Quarterly review of epidemiology of malaria –Malaria and Other Vector-Borne Diseases (MBVD), Communicable Disease Control (CDC) and Epidemiology and Surveillance

7. Program Policies, Strategies, Targets and Management

The overall management of the malaria programme is done with program policies, strategies, targets and management.

The malaria programme is situated within the directorate malaria and other vector borne diseases at the national level. At the provincial level the programme has provincial malaria control managers and at district level they are district malaria coordinators. There are dedicated malaria budgets at all levels.

The malaria programme is guided by the Malaria Advisory Group (MAG) with two sub-committees viz. Sub-Committee for Vector Control (SVC) and Sub-Committee for Chemoprophylaxis and Therapy (SCAT).

The programme has developed the following policies and guidelines: National malaria control policy which was updated in 2007, national guidelines on prevention and treatment updated 2009, draft vector control guidelines, draft occupational health and safety guidelines, and draft health promotion guidelines.

The malaria control programme plays an active role in the cross-border initiatives. The National Malaria Control Programme (NMCP) currently lacks adequate human resource to achieve the vision of malaria elimination. There is a lack of human resource capacity in National program and vacant Provincial malaria posts due to low grades retention. The alignment of Provincial malaria guidelines to National Department of Health (NDOH) guidelines is inadequate as well as the joint NDOH & Provincial malaria programmes and research institutions planning. A specific malaria Strategic Plan 2009-2015 in line with elimination agenda is lacking and updated (2009) national guidelines at all levels are not available.

Action points

The following key action points need to be implemented.

7.1 Recruit additional staff at the national malaria programme (e.g. Epidemiology and surveillance, logistics, planning and management)
7.2 Update the strategic plan in line with elimination agenda
7.3 Finalize elimination strategy
7.4 Establish malaria multisectoral elimination committees at national and provincial levels
7.5 Established partnership for a for specific areas such research, advocacy and health promotion

8 Conclusion

South African has achieved considerable progress in the last decade. The success of the programme has been due to the high coverage of IRS and prompt and effective treatment, which resulted in major reduction of local malaria cases to near zero. The review identifies that with some changes in the interventions and programme management the vision of malaria elimination in South Africa by 2015 can be achieved.

ANNEXURE B – PARTICIPANTS IN SOUTH AFRICA'S MPR

2009 National Malaria Programme Review Internal Teams

B1 Malaria Programme Review (MPR) Secretariat	
Name	**Position**
Dr DevanandMoonasar	Director: MVBD
Dr Eunice Misiani	Review Coordinator
Ms Mary Ann Groepe	WHO NPO Funds and Logistics
Ms TakalaniNemungadi	Communication
Ms PhumzileSabeka	Logistics
Ms Caron van Schalkwyk	Senior Administrative Assistant
Ms KgomotsoMmusi	Logistics
Ms NerineWillers	Logistics
Mr Lawrence Phuluwa	Logistics
Dr Charles Mugero	Report writing

B2 Thematic group members - Vector Control	
Name	**Organisation**
Dr LizetteKoekemoer	NICD/NHLS
Prof. Maureen Coetzee	NICD/University of Witwatersrand
Dr Raj Maharaj	MRC
Dr Basil Brook	NICD
Mr Philip Kruger	Malaria Programme Manager – Limpopo

B2 Thematic group members - Case Management	
Name	**Organisation**
Dr IndogesitUkpe	Department of Health, Mpumalanga
Dr Lucille Blumberg	NICD
Prof Karen Barnes	UCT: Department of Clinical Pharmacology
Dr Cornelia Duvenage	Department of Internal Medicine, Military Hospital
Dr Etienne Immelman	Department of Health (DOH)KwaZulu- Natal
Mrs Lee Baker	Amayeza Medicines Information Centre
Prof. John Frean	NICD

B2 Thematic group members: Epidemiology and Surveillance, M&E and Programme Management	
Name	**Organisation**
Dr Charles Mugero	NDOH – Principal Specialist, CDC Cluster
Mr Brett Archer	NICD
Mr Aaron Mabuza	Malaria Programme Manager, Mpumalanga
Ms Joy Mnyaluza	CDC Coordinator, Gauteng
Ms Dorothy Maine	NDOH, Monitoring and Evaluation Unit
Dr Eunice Misiani	NDOH, NMCP Manager
Ms Managaka Moloi	DWAE
Ms Zukile Gwayi	DWAE
Ms Dee Fischer	DWAE

B2 Thematic group members: Malaria Advocacy, Information, Education and Communication and Community Mobilization	
Name	**Organisation**
Ms Mary Ann Groepe	Malaria NPO, South Africa
Mr S Gumede	NDoH, CDC
Mr. Leonard Mudzanani	NDoH, Health Promotion
Ms MaletsemaMahonko	NdoH, Health Promotion
Mr Jason Urbach	Africa Fighting Malaria
Mr Eugene Mahlahlela	WHO, South Africa
Ms Elizabeth Matare	SADAG

B3 Provincial malaria managers	
Name	**Organisation**
Mr Eric Raswiswi	KwaZulu-Natal, Malaria Programme Manager
Mr Aaron Mabuza	Mpumalanga, Malaria Programme Manager
Mr Philip Kruger	Limpopo, Malaria Programme Manager
Ms Joy Mnyaluza	Communicable Diseases Coordinator, Gauteng
Mr Roy Mokate	North West, Malaria Programme Manager

B4 External team members	
Name	**Organisation**
Dr Shiva Murugasampillay	WHO Global Malaria Programme (Geneva)
Dr Charles Paluku	WHO IST Harare
Dr Lincoln Charimari	WHO NPO Zimbabwe
Mr Wilfred Dodoli	WHO NPO Malawi
Dr BasimikeMulenda	WHO IST Harare
Dr Josephine Namboze,	WHO IST Harare
Mr Simon Kunene	NMCP Manager, Swaziland

2009 National Malaria Programme Review - Provincial Review Teams

The following individuals formed the review teams that visited various provinces:

Northwest

- Charles Paluku, (IST-ESA/ WHO)**Team leader**
- Eunice Misiani, (Department of Health)
- Dorothy Maine (National Department of Health)
- Leonard Mudzanani (NDOH)
- Cornelia Duvenage (Malaria Advisory Group; South African National Defence Force)
- LizetteKoekemoer (NICD / NHLS)
- Murdock Ramathuba (NDOH)

Mpumalanga

- BasimikeMulenda (WHO AFRO), **Team Leader**
- Simon Kunene (NMCP, Swaziland)
- Blumberg (NICD)
- Idongesit S. Ukpe (Mpumalanga)
- Maureen Coetzee (NICD)
- Maletsema (NDOH)

Limpopo Province

- L. Charimari (WHO, Zimbabwe) **Team leader**
- Basil Brooke (NICD),
- M. Basimike (WHO, IST),
- John Frean (NICD),
- I. S. Ukpe (MAG,Department of Health, Mpumalanga),
- Armando Sancez, (MAG, Department of Health Limpopo)
- Charles Mugero (NDoH)
- L. MuDzanani (NDoH),
- E Mahlele (WHO, SA)

KwaZulu-Natal

- S Murugasampillay, WHO(**Team leader)**
- S Kunene (Swaziland);
- R Maharaj (MRC);
- E Immelman (DoH, KZN);
- L Baker (SCAT);
- K Hlongwana (MRC);
- S Gumede (NDOH),
- M Moloi (DEAT);

Gauteng

- Dr. C. Paluku (WHO,IST),**(Team leader)**
- Dr. Charles Mugero (NDoH),
- Dr. F. Benson (NDoH)
- Mr Gumede (NDoH)
- Mr.EMahlele (WHO, SA)
- Dr. L. Charimari (WHO, Zimbabwe)L Koekermoer (NICD / NHLS);
- E Raswiswi (Department of Health, KZN);
- JK Gumede (Department of Health, KZN)
- D Moonasar (NDOH)

ANNEXURE C – WHO REVIEW TOOLS

National, provincial and district review tools were used by reviewers when assessing and/or interviewing at the applicable level. These tools included questionnaires administered along the different thematic areas. Health facility (covering laboratories and pharmacies) and community level tools.

Introduction

The MPR at the at the National level focuses on the following:

1. Development of Norms, Standards, Policies and Guidelines;
2. Planning;
3. Coordination of partnerships;
4. Resource mobilization and management;
5. Capacity Building including technical support;
6. Supervision, Monitoring and Evaluation
7. Research;
8. Epidemic preparedness and response;
9. Advocacy;
10. Procurements and supply management

IMPORTANT NOTE

MOST OF THESE QUESTIONS REFLECT THE STANDARDS. MINIMAL ADAPTATION ISREQUIRED

Questionnaire for the national malaria programme manager

	Check List/ Question	**Assessment**	**Comments- Strengths and Weakness- Bottleneck/Constraints Lessons learnt -**	**Recommendation/ Change Proposed**
Malaria Policy, guidelines and legislation.				
1.3.1	Is there written national malaria control policies for all major malaria control and elimination interventions? If yes, when were these policies and guidelines last updated?	Yes No Year		
1.3.2	Are these policies and guidelines aligned to WHO international policies and guidelines on malaria control and elimination?	Yes No		
1.4.1	Do you have a malaria act/legislation? When it was last updated?	Yes No Year		
1.4.2	Malaria is an infectious or communicable disease. Is there a national policy on free access to prevention and treatment interventions? If not, explain---------	Yes No		
Malaria Program governance and mechanism of coordination				
1.5.1	Where in the organogramme of the MOH is the NMCP placed?			
1.5.2	Is there weekly or monthly team meeting with minutes in the malaria control department/unit?	Yes No		

	Check List/ Question	**Assessment**	**Comments- Strengths and Weakness- Bottleneck/Constraints Lessons learnt -**	**Recommendation/ Change Proposed**
1.5.3	Is there a national inter-sectoral malaria commission or any other mechanisms in place established to coordinate policies in malaria control across major government departments?. Does it meet regularly (example quarterly)? If yes, request minutes of the meetings to verify.	Yes No		
1.5.4	Is there a national malaria expert/ advisory technical committee in place to provide oversight to the national malaria control department/unit and program? Has it got TORs and are there scheduled meetings with minutes?	Yes No Yes No		
	Is there malaria interventions thematic areas subcommittee/ working groups in place (Advocacy &IEC,Vector Control, diagnosis and treatment, Program management, Epidemiology surveillance, information and monitoring and evaluation etc). Do they have TORs and are there scheduled quarterly meetings with	Yes No Yes No		

	Check List/ Question	**Assessment**	**Comments- Strengths and Weakness- Bottleneck/Constraints Lessons learnt -**	**Recommendation/ Change Proposed**
	minutes.			
Malaria Organizational Structure & Human resources				
1.6.1	Are there clear definitions regarding what malaria service delivery is by level. .	Yes No		
	Is there minimum staffing of the national malaria department/unit with 4- 7 focal persons: (1) Program management; (2) Prompt and effective diagnosis& treatment; (3) Entomology and vector control; (4) Research, Surveillance, monitoring and evaluation; (5) Community-based interventions and behaviour change communication; (6)Partnership, planning and resource mobilization. Other focal points such as Epidemics-Emergences	Yes No		
	Is there adequate extra staff to service the needs of Global fund Project administration such as 1) Finance and accounting Officer; 2) Procurement and Logistics Officer;3) Epidemiologist and Monitoring and Evaluation officers and data managers	Yes No		

	Check List/ Question	Assessment	Comments- Strengths and Weakness- Bottleneck/Constraints Lessons learnt -	Recommendation/ Change Proposed
	Are there malaria control designated focal points or full time malaria officers at the provincial and districts level? In districts moving towards malaria elimination are there more than one officer?	Yes No Yes No		
Place of Malaria Control in the National Development agenda				
	Malaria included in poverty reduction strategic plan (PRSP) and Medium term expenditure framework (MTEF)- Line item on malaria.	Yes No		
	Malaria control a priority in health sector reform (SWAP, Decentralization) and health system and PHC development	Yes No		
	Malaria control in the allocation of MOH budgets. **Fill table below**			

	AMOUNTS INVESTED IN MALARIA CONTROL (USD)					TOTAL (USD)
	Year 1	Year 2	Year 3	Year 4	Year 5	
1. Total Health Budget						
2. Amount allocated to malaria control line item						
3. % of health budget allocated to malaria						
4. Amount actually spent on malaria control in the district						
5. % of malaria budget actually spent						

Continuation for programme manager

Check List/ Question		Assessment	Comments- Strengths and Weakness- Bottleneck/Constraints Lessons learnt -	Recommendation/ Change Proposed
Malaria Strategic, annual planning& review				
1.7.1	Is there a updated fully costed national malaria strategic plan ? If yes, was it developed in consultation with all stake holders and RBM partners ? Is it being supported by the RBM partners ?	Yes No Yes No Yes No		
1.7.2	Is the national strategic plan printed and widely distributed for use as reference and for annual operational planning.	Yes No		
1.7.3	Is there an annual malaria operational (business) plan? Is it part of the national health sector annual plans and linked to the country financial planning cycles as well as to the annual malaria seasonal	Yes No Yes No		

Check List/ Question		Assessment	Comments- Strengths and Weakness- Bottleneck/Constraints Lessons learnt -	Recommendation/ Change Proposed
	cycles.			
1.7.4	Is there quarterly and annual review and planning meetings with provinces and endemic districts to monitor the implementation of the annual malaria plans?	Yes No		
1.7.5	Is there annual malaria conference with the provinces and districts and stakeholder and partners to evaluate annual implementation and plan for the new year?	Yes No		
	Is there periodic strategic plan or programme reviews/evaluations? If yes, when was the last done?	Yes No Year		
RBM Partner and donor coordination mechanisms				
	Is there a malaria partners data base and mapping in place?	Yes No		
	Are there scheduled quarterly national RBM partnership meetings with minutes ?	Yes No		
	Is there active participation in sub-			

Check List/ Question		Assessment	Comments- Strengths and Weakness- Bottleneck/Constraints Lessons learnt -	Recommendation/ Change Proposed
	regional RBM network meetings by the programme?			
	Who are the major national RBM financing partners and in what areas of malaria control are they investing in?**Use table**			

	Intervention area					
Partner	**Case Management**	**LLINs**	**IRS**	**BCC/IEC**	**M&E**	**Total budget for the current fiscal year**

Malaria inter-country and cross border collaboration				
	Is there any policy framework for cross-border collaboration?	Yes No		
	Are there annual bi-lateral cross-border meetings at the national	Yes No		

Check List/ Question		Assessment	Comments- Strengths and Weakness- Bottleneck/Constraints Lessons learnt -	Recommendation/ Change Proposed
	level on malaria control? Are these part of other cross- border meetings?	Yes No		
	Are there quarterly cross border meetings at the level of the districts?	Yes No		
Supervision, Monitoring and Evaluation of programme implementation				
	Are there annual operational service delivery targets? Are they used?	Yes No Yes No		
	Is there a supervision check list?	Yes No		
	Is there a defined supervision schedule? Is there a system for follow up from the supervision?	Yes No Yes No		
	Is there a malaria M&E Plan? Is it implemented?	Yes No Yes No		
	Programme reporting			
	Is there routine reporting of malaria service delivery? Is it complete (4 reports if quarterly)? Is it timely (as determined	Yes No Yes No		

Check List/ Question		Assessment	Comments- Strengths and Weakness- Bottleneck/Constraints Lessons learnt -	Recommendation/ Change Proposed
	by MoH)?			
	Is there monthly and quarterly malaria reporting of service delivery outputs?	Yes No		
	Does the programme produce an annual malaria report	Yes No		
	If yes, is it complete (includes all contributions even from partners)?	Yes No		
BCC/IEC				
	Is there a communication strategy for malaria control? If yes, does it address all the interventions namely: case management, IRs,and LLINs	Yes No		
	Is there a critical mass of facilitators and community mobilizers trained in case management? If so, how many?	Yes No Number		
	Are there CBOs involved in malaria control activities? If yes, how many?	Yes No Number		

Questionnaire for the vector control focal point

	Check List/ Question	**Assessment**	**Comments- Strengths and Weakness- Bottleneck/Constraints Lessons learnt -**	**Recommendation/ Change Proposed**
Policy and Programming Framework				
1.1.1	Is there a policy document for ITN scale up?**Ask for a copy**	Yes No		
1.1.2	Is universal coverage part of your ITNs target and what national strategies to achieve it and maintain it?	Yes No		
1.1.3	Is there a national IRS policy/ guidelines, training manuals which conform to WHO specifications?	Yes No		
1.1.4	Is there a national insecticide management system (describe)?	Yes No		
	Is there a national IVM policy? **(Ask for document).** Describe the components of IVM being implemented in the country	Yes No		
Current Programme Services Delivery Systems, their Performance and challenges				
	How adequate are storage facilities for malaria vector control commodities (LLINs, Spray pumps,	Adequate Not		

	Check List/ Question	**Assessment**	**Comments- Strengths and Weakness- Bottleneck/Constraints Lessons learnt -**	**Recommendation/ Change Proposed**
	insecticides, protective equipment etc)?	adequate Planned expansion space		
	Is the a national/central maintenance workshop for spray pumps?	Yes No		
	Is there enough equipment, transport, and test kits for vector surveillance including insecticide resistance?	Yes No		
	Are there adequate disposal facilities for insecticide empty containers, worn out LLINs etc?	Yes No		
LLINs program				
	Are there annual trends in terms of numbers of ITNs distributed by year (chats, register or database)?	Yes No		
	Do you have plans for mass LLINs distribution and replacement (documents, national targets by year)?	Yes No		
	Is a system in place for estimating, forecasting, procurement of ITNs	Yes No		

	Check List/ Question	Assessment	Comments- Strengths and Weakness- Bottleneck/Constraints Lessons learnt -	Recommendation/ Change Proposed
	Are the facilities for storing logistics for the ITNs program adequacy at all levels	Yes No		
IRS program				
	Are there maps showing IRS targeted areas in the country/ If yes, **verify**	Yes No		
	Are estimates for annual IRS requirements calculated and procured annually? If so, **verify** for current year	Yes No		
	Are the storage facilities for logistics and for the IRS campaigns adequacy?	Yes No		
	Are there checklists for IRS supervision?	Yes No		
	Are quality control mechanisms in place for insecticides, pumps and LLINs	Yes No		
	How is the IRS program financed?	Yes No		
	Is there a plan for capacity building for vector control at all levels?	Yes No		

	Check List/ Question	**Assessment**	**Comments- Strengths and Weakness- Bottleneck/Constraints Lessons learnt -**	**Recommendation/ Change Proposed**
	If yes, how often is training in vector control organized in the country?			
	Has training improved the quality of vector control activities?	Yes No		
Larval Control				
	Are there maps showing breeding sites and areas targeted for larval control?	Yes No		
	Are there vector control sentinel sites and type of data collected at these sites?	Yes No		

1. Questionnaires for the Case management focal point

Check List/ Question		Assessment	Comments- Strengths and Weakness- Bottleneck/Constraints Lessons learnt -	Recommendation/ Change Proposed
Policy framework, Malaria diagnosis and treatment				
1.2.1	Is there a policy document for malaria treatment? Ask for a copy When was it last updated?	Yes No Year		
1.2.2	Do you have diagnosis and treatment guidelines for all levels? Ask for a copy When was it last updated?	Yes No Year		
1.2.3	Is there a national malaria diagnosis and case-management sub-comittee or working group? If yes, Verify Does it have quarterly scheduled meetings? Do they visit the provinces and districts ?	Yes No Yes No Yes No		
Therapeutic efficacy testing (TET)				

Check List/ Question		Assessment	Comments- Strengths and Weakness- Bottleneck/Constraints Lessons learnt -	Recommendation/ Change Proposed
	What is the NMCP plan for TET and how often is it planned in the country? (one every two years is the standard			
1.2.5	How many sentinel sites are there for conducting TET? Where are they located (**Check if they cover the various epidemiological zones in the country**)			
	What is the minimum staffing level in each site? (Clinician, laboratory technician, data clerk, nurse for follow-up activities)			
	Is there a designated molecular laboratory for conducting PCR?	Yes No		
	Is there a designated laboratory for QC for laboratory done in TET?	Yes No		
	Is there a report on the most recent TET? **Check** to see if report details	Report is adequate		

Check List/ Question		Assessment	Comments- Strengths and Weakness- Bottleneck/Constraints Lessons learnt -	Recommendation/ Change Proposed
	out method according to WHO protocol, 28 day follow-up process, results reported as ETF,LCF, LPF, ACPR	Yes No		
	Is there a designated committee to review outcomes of TET? If yes, Are there reports from this committee?	Yes No Yes No		
Malaria case management training				
	Is there a training plan for malaria? If yes, does it include in-service and pre-service training for all sectors?	Yes No Yes No		
	Is there a network of national trainers	Yes No		
	Is there case management training materials developed for annual in-	Yes		

Check List/ Question		Assessment	Comments- Strengths and Weakness- Bottleneck/Constraints Lessons learnt -	Recommendation/ Change Proposed
	service training and for pre-service training	No		

Questionnaire for the National public health laboratory or laboratory focal person with the malaria programme

Check List/ Question		Assessment	Comments- Strengths and Weakness- Bottleneck/Constraints Lessons learnt -	Recommendation/ Change Proposed
*Policy framework,**m**alaria parasite based diagnosis*				
	Are there laboratory guidelines including guidance in malaria parasite based diagnosis at all levels? **Verify**	Yes No		
	Is there a quality manual describing the quality system policy and the quality procedures available?	Yes No		

Check List/ Question		Assessment	Comments- Strengths and Weakness- Bottleneck/Constraints Lessons learnt -	Recommendation/ Change Proposed
	Is thestaff adequate and have they got appropriate qualifications and competences?	Yes No		
1.2.1	Do you have banks for both good and bad slides?	Yes No		
1.2.2	Have you an established laboratory network? If so, describe how these laboratories are organized?**Check** for inclusion of all level laboratories	Yes No		
Documents and records				
	Does the laboratory have developed its own operating documents (instructions, standardized operating procedures, bench aids), written by the laboratory staff?	Yes No		
1.2.5	Is a system in place to organize the management of	Yes		

Check List/ Question		Assessment	Comments- Strengths and Weakness- Bottleneck/Constraints Lessons learnt -	Recommendation/ Change Proposed
	laboratory documents and records?	No		
Specimen collection and transport				
	Are specific instructions for the proper collection and handling of primary sample?	Yes No		
	Is there a budget line for the purchase of supplies, consumables and reagents?	Yes No		
	Does the laboratory participate in an External Quality Assessment (EQA) programme for each discipline (proficiency-testing or systematic rechecking)?	Yes No		
. Laboratory QA/QC				
	Is there a strategic plan for QA/QC? If Yes, .. Does it have the relevant components including: ordering and procurement ? Capacity building? Performance monitoring? QC at various levels? Internal and extenal QA activities? Information system?	Yes No Yes No		
	Microscopy	Yes		

Check List/ Question		Assessment	Comments- Strengths and Weakness- Bottleneck/Constraints Lessons learnt -	Recommendation/ Change Proposed
	Do you have a system for Lab internal and external QA and QC? **Verify** on key components: designated laboratories by level, sample handling processes, guidelines including SOPs?	No		
	How many trained laboratory personnel and trainers do you have?	Number		
	RDTs Do you have guidelines on monitoring quality of RDTs from procurement to use in the field? If so, **verify** if it has cool chain, temperature monitors and QC at different levels?	Yes No		
	Do you have a costed plan for RDT Lot testing and batch testing? Is there a budget line for these activities?	Yes No		
	Do you have monitors of storage temperatures for RDTs?	Yes No		
	Do you have sentinel sites used to compare RDTs with microscopy?	Yes No		

Questionnaire for the NMS or those in charge of procurement in the malaria programme

Check List/ Question		Assessment	Comments- Strengths and Weakness- Bottleneck/Constraints Lessons learnt -	Recommendation/ Change Proposed
Procurement Supply chain Management				
	Do you have a PSM plan?	Yes No		
	Is there a focal point of PSM for malaria commodities?	Yes No		
	Do you have a designated procurement agency?	Yes No		
1.2.1	Is there a national system for estimating and projecting needs and demands for malaria commodities ?	Yes No		
1.2.2	Is there a national system in place for stock control and stock reporting at all levels ?	Yes No		

Check List/ Question		Assessment	Comments- Strengths and Weakness- Bottleneck/Constraints Lessons learnt -		Recommendation/ Change Proposed
	What is the current levels of national stocks of malaria commodities ? Is there buffer stocks ?	Yes No			
Quantification of anti-malarial medicines					
	Do you have a working group on quantification of anti-malarial medicines?	Yes No			
	If so, which medicines do they quantify? ACTs? Medicines for severe malaria? Supportive therapies?				
	Have you any guide on quantifying commodities for management of severe malaria? What does it include? Estimates of QN requirements? Dextrose? Giving sets and canulas, etc..	Yes No			
	Do you have a method for quantifying RDTs? If yes, **Assess** what it uses. (Geographical area, No of health facilities targeted)	Yes No			
1.2.5	Is there an annual quantification based on	Yes			

Check List/ Question		Assessment	Comments- Strengths and Weakness- Bottleneck/Constraints Lessons learnt -		Recommendation/ Change Proposed
	guidelines above?		No		
	Will the health facilities decrease or increase and does the estimates cover this plan?		Yes No		
	Do the estimates cover the possible proportion of the population that will be using the facilities?		Yes No		
	Is there a government budget line for medicines and supplies? If yes, what is it's adequacy in relation to estimated national requirements?		Yes No Adequate Inadequate		
Ordering system					
	Do you have a routine ordering system? If yes, does it take into account lead time? Time for taking order? Production and shipment time? Customs clearance and arrival into the warehouse?		Yes No Yes No		
	Are the amounts to be ordered adjusted for wastage? (10% is the standard)		Yes No		

Check List/ Question		Assessment	Comments- Strengths and Weakness- Bottleneck/Constraints Lessons learnt -		Recommendation/ Change Proposed
	Are the quantities to be ordered worked out according to pack size and minimal order size?		Yes No		
	Does the system take into account the time required for re-ordering?		Yes No		
Storage and Distribution					
	Are there guidelines for distribution of supplies by level?		Yes No Yes No		
	Do you have written SOPs for PSM at all levels? If yes, does this provide guidance on: Storage/ FIFO/FEFO? Cool chain? Management of expiry medicines supplies? Redistribution and stock management?		Yes No Yes No		
	Is there a system in place for tracking medicine distribution?		Yes No		

Check List/ Question		Assessment	Comments- Strengths and Weakness- Bottleneck/Constraints Lessons learnt -		Recommendation/ Change Proposed
	If yes, does it have a schedule for staggered deliveries? Method of distribution? Resupply intervals? Planned transport?		Yes No		
	Are stock cards available at each level of health care?		Yes No		
	Is there a logistics information system?		Yes No		
	If so, do you have a report of last month?		Yes No		

Questionnaires for National regulatory authority

Check List/ Question		Assessment	Comments- Strengths and Weakness- Bottleneck/Constraints Lessons learnt -	Recommendation/ Change Proposed
2 ***Policy framework, medicine quality control and rational use of drugs***				
1.2.1	Is there a National Medicines Policy (NMP) document? If yes, what year was it last updated? **Ask for a copy**	Yes No Year		
1.2.2	What are the sources of funding for the medicines regulatory authority?	1.Govt 2.Revenues collected 3.Private 4. External support		
1.2.3	Is the medicines regulatory authority involved in regional/international harmonization initiatives?	Yes No		
1.2.4	How many medicinal anti-malarialshave been approved to be marketed? *(count total number of unique dosage*	Number 1.Monotherapies 2.ACTs		

Check List/ Question		Assessment	Comments- Strengths and Weakness- Bottleneck/Constraints Lessons learnt -	Recommendation/ Change Proposed
	forms and strengths)	3.Parenteral AS		
1.2.5	Is the WHO Certification Scheme required as part of the marketing authorization process?	Yes No		
	Is there a quality management system in place?			
	Are medicine samples tested for the following regulatory purposes: Medicines registration: Post-marketing surveillance:	Yes No Yes No		
	What is the total number of anti-malarial samples quality tested in 2008?	Number		
	Are there any laws, regulations, programmes or procedures for detecting and combating counterfeitmedicines? Is there a national Essential Medicines List (EML)? If yes, when was it last	Yes No Year		

Check List/ Question		Assessment	Comments- Strengths and Weakness- Bottleneck/Constraints Lessons learnt -	Recommendation/ Change Proposed
	updated?			
	Are standard treatment guidelines (STGs) produced by the health ministry for major conditions including malaria? If yes, when were the STGs last updated?	Yes No Year		
	Have there been any public education campaigns about rational medicines use in the previous two years conducted by the health ministry, a nongovernmental organization, or academia?	Yes No		
	Is there a national programme and/or multidisciplinary body, involving government, civil society and professional bodies, which monitor and promote the rational use of medicine?	Yes No		
	Is there a national reference laboratory to coordinate medicine quality control?	Yes No		

Check List/ Question		Assessment	Comments- Strengths and Weakness- Bottleneck/Constraints Lessons learnt -	Recommendation/ Change Proposed
Pharmacovigilance				
	Is there a guideline, curriculum and tools for pharmacovigilance? If so, does it allow for zero-reporting?	Yes No		
	Do you have a PV reporting system? Describe it. (**flow of info and feedback)**			
	Is there a designated national reference centre for PV? Where is this located?			
	Is there a Technical Advisory Committee for PV? Who is on this committee? (Clinicians, DRA, HIV/TB/Malaria and EPI focal points, pharmacy, etc)	Yes No		
	Is there a national investigation team for reported ADRs? Are there district investigation teams?	Yes No Yes No		
	Is there a training plan for PV?	Yes		

Check List/ Question		Assessment	Comments- Strengths and Weakness- Bottleneck/Constraints Lessons learnt -	Recommendation/ Change Proposed
		No		
Quality of medicines				
	Is there a plan for QC of malaria medicines? Does this look at quality in both the public and private sectors?	Yes No		
	Is there a designated centre for QC for medicines?	Yes No		
	Is there SOPs for reporting poor quality medicines (poor packaging and quality for lots)?	Yes No		

Questionnaire for M&E focal person

Check List/ Question		Assessment	Comments- Strengths and Weakness- Bottleneck/Constraints Lessons learnt -	Recommendation/ Change Proposed
Surveillance, Monitoring and Evaluation Plan				
1.7.7	Does the NMCP have a costed M&E plan?	Yes No		
1.7.8	If yes, **Assess** if it is it well written, comprehensive and specifies the goals and objectives of the programme and identifies the key inputs, processes /activities, outputs, outcomes, and impact?	Yes No		
	Assess if the M&E plan outlines the core indicators? (these must be included in the guidelines for ease of reference for the reviewers)	Yes No		
	Assess the M&E plan takes into account existing systems such as	Yes No		

Check List/ Question		Assessment	Comments- Strengths and Weakness- Bottleneck/Constraints Lessons learnt -	Recommendation/ Change Proposed
	HMIS and IDSR?			
	Assess the M&E plan describes activities, roles, and responsibilities of the various stakeholders?	Yes No		
	Assess the M&E plan has timelines for M&E activities (data collection, data analysis, report writing, dissemination and use of findings).	Yes No		
Surveillance, Monitoring and Evaluation Capacity				
	NMCP has established M&E unit	Yes No		
	SME unit has designated technical persons such as epidemiologist and data manager	Yes No		
	SME Unit has computers, fax, printer, data storage equipment and space	Yes No		

Check List/ Question		Assessment	Comments- Strengths and Weakness- Bottleneck/Constraints Lessons learnt -	Recommendation/ Change Proposed
	Malaria SME has a budget line in the malaria budget (%) If so, Indicate the proportion of the malaria SME budget in relation to the total malaria budget	Yes No %		
	Existence of a technical working group or sub-group on malaria SME	Yes No		
	Existence of a formalized M&E link, particularly with other malaria stakeholders such as line ministries, NGOs and donors, national research institutions and the Central Statistics Office (CSO).	Yes No		
Surveillance				
	Has the NMCP/MOH has integrated surveillance guideline/manual and tools?	Yes No		

Check List/ Question		Assessment	Comments- Strengths and Weakness- Bottleneck/Constraints Lessons learnt -	Recommendation/ Change Proposed
	If yes, do they include malaria?	Yes No		
	Is there a vertical malaria surveillance system?	Yes No		
	Are there standardized case definitions for malaria? – (uncomplicated and severe)	Yes No		
	Is data collected, collated and analysed at national and sub-national levels? If yes, **verify** if forms are at collection centres	Yes No		
	What is the frequency of analysis and reporting?			
	What is the reporting completeness in the last 12 months?			
	What is the average reporting timeliness in the last 12 months?			

Check List/ Question		Assessment	Comments- Strengths and Weakness- Bottleneck/Constraints Lessons learnt -	Recommendation/ Change Proposed
	Is there a trend analysis for the last 5 years? **Verify**	Yes NO		
	Does country produce regular surveillance reports or bulletin (maps and graphs)? **Verify.**			
	Is regular feedback provided from the national to provincial/regional/state levels	Yes NO		
	Does the programme use the media and internet for dissemination of information?	Yes NO		
	Does the programme conduct regular meetings for data dissemination and action?	Yes NO		
Sentinel Surveillance Sites				
	How many sentinel sites does the country have?			
	Does the sentinel site conduct	Yes		

Check List/ Question		Assessment	Comments- Strengths and Weakness- Bottleneck/Constraints Lessons learnt -	Recommendation/ Change Proposed
	insecticide susceptibility tests?	NO		
	Does the sentinel site conduct expanded malaria surveillance studies?	Yes NO		
Operations research				
	Is there a written and fully funded national malaria control operations research plan? **Verify**	Yes NO		
	Is there a national malaria control operational research committee (including representatives of universities and research institutions) set up to take charge of the implementation of the operational plan?	Yes NO		
	Have research priorities been identified for this year?	Yes NO		
	Is there collaboration with research	Yes		

Check List/ Question		Assessment	Comments- Strengths and Weakness- Bottleneck/Constraints Lessons learnt -	Recommendation/ Change Proposed
	institutions?	NO		
	Is funding for research adequate? What are the sources of current financing for operational research?	Yes NO		
	Do you have a system in place for reviewing results of operational research to identify those that can be used to update country policies?	Yes NO		
	Is there a formalized link with line ministries, NGOs and donors, and national research institutions aimed at enhancing operations research efforts	Yes NO		
Data Storage, Use and Website				
	Is there a functional electronic malaria database? If yes, How often is it updated?	Yes No		

Check List/ Question		Assessment	Comments- Strengths and Weakness- Bottleneck/Constraints Lessons learnt -	Recommendation/ Change Proposed
	Is there adequate HR capacity to run database and update it	Yes No		
	Are there backups for computers and electronic devises?	Yes No		
	Is the database used to generate reports for the partnership	Yes No		

Questionnaire for EPR focal point

Check List/ Question	Assessment	Comments- Strengths and Weakness- Bottleneck/Constraints Lessons learnt -	Recommendation/ Change Proposed		
Importance of Malaria epidemics Control within NMCP					
1.2.1	Does malaria programme have EPR costed plans?		Yes No		
1.2.2	Are all malaria epidemic prone districts of the country mapped?		Yes No		
1.2.3	Does the programme have malaria epidemics (EPR) guidelines		Yes No		
1.2.4	Does malaria conduct post epidemics and emergency post-mortem assessments?		Yes No		
1.2.5	Is malaria season forecast and prediction provided to the districts to inform their planning exercises?		Yes No		
	Are there malaria epidemic thresholds and how often are they updated?		Yes		

		No		
	Are there well-defined action thresholds, denominators and numerators at all levels?	Yes No		
Malaria Epidemics and partnerships				
	Does NMCP carry out stakeholders' assessment and update.	Yes No		
	Do partners contribute to preparedness and response needs of the country? How?	Yes No		
	How coordinated are the responses to malaria epidemics and emergencies in the country?	Yes No		
Adequacy of the organisation and management of malaria epidemics				
	Are there malaria epidemics guidelines and SOPs?	Yes No		
	Is there a system for malaria epidemics surveillance?	Yes No		
	Are malaria epidemics indicators routinely monitored and reported on	Yes No		
	Is there a functional *malaria sub-committee* on epidemics and emergency?	Yes No		
	Is there an Annual Updated *Epidemic and Emergency? Plan* in place	Yes		

		No		
	Are there weekly surveillance with epidemic *thresholds* at health facility, districts and provincial and national level in place	Yes No		
	Is there a well defined and trained national and districts *malaria emergency-epidemic teams* with annual refresher training in place at national and in high risk districts	Yes No		
Malaria epidemics logistics & emergency commodities				
	Is there National Malaria Emergency- Epidemic *funds* in place	Yes No		
	Does the malaria programme have adequate emergency commodities and supplies at all levels?	Yes No		
	Is there adequate transport for service delivery and for supervision of malaria epidemics?	Yes No		
	Malaria epidemics inter-country and cross border collaboration during response activities?	Yes No		
Forecasting				
	Are there long term forecast(6- 12 months forecast) developed in collaboration with national and regional metrological/ drought and climate monitoring centres.	Yes No		

	And are there medium to short term forecast (1-3 months forecast) developed in collaboration with national and regional metrological/ drought and climate monitoring centres.	Yes No		
Surveillance				
	Is there weekly surveillance in high risk districts and provinces especially during peak malaria transmission and epidemic risk months?	Yes No		
	Is there weekly monitoring of change in *key metrological indices* such as rainfall, temperature, in high districts and nationally?	Yes No		
Rapid response				
	Are malaria epidemic and Emergencies *investigated within* one week of report? If yes, **verify**			
	Are epidemic and Emergencies *responded to within one week* of investigation? If yes, **verify**			
Reporting				
	Is there an annual record of epidemics- emergencies, regards location, month, cases, deaths and CFR, cause and type or response kept ? If yes, **verify**			

MPR- PROVINCIAL HEALTH TEAM TOOL

Name of province	
Names of Interviewer	
Date of interview	

Introduction

The MPR at the at the provincial level focuses on

1. The adequacy of the organizational and management of malaria control program at this level
2. The malaria profile in the province and the appropriateness of interventions being implemented
3. Status of malaria control interventions

MPR- PROVINCIAL HEALTH TEAM TOOL

Name of province	
Names of Interviewer	
Date of interview	

1. The adequacy of the organization and management of malaria control at this level in terms of

Check List/ Question		**Assessment**	**Comments- Strengths and Weakness- Bottleneck/Constraints Lessons learnt -**	**Recommendation/ Change Proposed**
1.1 Availability of malaria control annual business or operational plans or malaria control activities within the healthy plan				
1.1.1	Is malaria control reflected in the provincial annual health plan or is there a separate annual provincial malaria control operational plan? **Ask for a copy of the plan.**	Yes No		
1.1.2	Does this province have a line item for malaria control in its budget? **As for a copy of the budget**	Yes No		
1.1.3	Complete the table below Ask to see the current malaria plans of each district			

Names of districts	**Availability of district malaria control focal persons in (Mark X if available)**	**Availability current dist business plan (M X if available)**

1.1.	Do all malarious districts	Yes		

MPR- PROVINCIAL HEALTH TEAM TOOL

Name of province	
Names of Interviewer	
Date of interview	

Check List/ Question		**Assessment**	**Comments- Strengths and Weakness- Bottleneck/Constraints Lessons learnt -**	**Recommendation/ Change Proposed**
4	have malaria control focal persons (Review the table above)	No		
1.1.5	Do all malariousdistricts have upto date malaria control business plans (Review the table above)	Yes No		

Check List/ Question		Assessment	Comments- Strengths and Weakness- Bottleneck/Constraints Lessons learnt -	Recommendation/ Change Proposed
1.2 Availability of appropriate malaria control guidelines and tools				
1.2.1	Is there a copy of the national malaria control diagnostic and treatment guideline in the provincial health office? Ask for a copy	Yes No		
1.2.2	Does the district have IRS guidelines, training manuals?	Yes No Not		

MPR- PROVINCIAL HEALTH TEAM TOOL

Name of province	
Names of Interviewer	
Date of interview	

Check List/ Question		Assessment	Comments- Strengths and Weakness- Bottleneck/Constraints Lessons learnt -	Recommendation/ Change Proposed
	Ask for a copy	cable (if no ct in the nce is ted for IRS)		
1.2.3	Does the province possess LLINs distribution guidelines? Ask for a copy	Yes No		
1.2.4	Is there any IVM guidelines for malaria control in the province? Ask for a copy	Yes No		
1.2.5	Does the province have an EPR guidelines and/orcurrent EPR plan? **Ask for a copy**	Yes No Not applicable (if the no district in the province epidemic prone)		

MPR- PROVINCIAL HEALTH TEAM TOOL

Name of province	
Names of Interviewer	
Date of interview	

	Check List/ Question	**Assessment**	**Comments- Strengths and Weakness- Bottleneck/Constraints Lessons learnt -**	**Recommendation/ Change Proposed**
1.3 Malaria control logistics:				
1.3.1	Are there adequate logistics for malaria control (office space, office equipment, materials and supplies, storage facilities, transportation)? **Inspect the malaria control office**	Yes No		
1.3.2	Is there a copy of the procurement and supply management (PSM) in the provincial health office? **Ask for a copy**	Yes No		
	Is there a copy of the standard operating procedures (SOPs) in the provincial health office? **Ask for a copy**			
1.4 Availability of focal person for malaria control				
1.4.1	Does the province have a malaria control focal person?	Yes No		
1.4.2	What type of malaria focal person does the province have?	Dedicated Polyvalent		
1.5 Availability and coordination of malaria control partnerships				
1.5.1	Is there a mechanism for coordinating malaria control activities at the provincial level?	Yes No		
1.5.2	If yes to 1.5.1, describe the coordination mechanism for malaria control in the province			

MPR- PROVINCIAL HEALTH TEAM TOOL

Name of province	
Names of Interviewer	
Date of interview	

1.5.3	If yes to 1.5.1, what is the frequency of the coordination meetings?			
1.5.4	If yes to 1.5.1, name the different partners and their contribution to malaria control in the district?	Maybe this is better in a table. See suggestion below		

	Intervention area					
Partner	**Case Management**	**LLINs**	**IRS**	**BCC/IEC**	**M&E**	**Total budget for the current fiscal year**

1.6 The status of resource mobilization and financing of malaria control activities

1.6.1	How much has this province invested in the control of malaria in the last 5 years (Fill the table below			

MPR- PROVINCIAL HEALTH TEAM TOOL

Name of province	
Names of Interviewer	
Date of interview	

	AMOUNTS INVESTED IN MALARIA CONTROL (USD)					TOTAL (USD)
	Year 1	**Year 2**	**Year 3**	**Year 4**	**Year 5**	
1. Total provincial Health Budget						
2. Amount allocated to malaria control line item						
3. % of health budget allocated to malaria						
4. Amount actually spent on malaria control in the district						
5. % of malaria budget actually spent						

1.6.2	What are the sources of funding malaria control in the province?	

MPR- PROVINCIAL HEALTH TEAM TOOL

Name of province	
Names of Interviewer	
Date of interview	

Check List/ Question		**Assessment**	**Comments- Strengths and Weakness- Bottleneck/Constraints Lessons learnt -**	**Recommendation/ Change Proposed**
1.7Status of malaria Surveillance, Supervision, monitoring and evaluation				
1.7.1	Do you know of the existence of a malaria control monitoring and evaluation plan in this country	Yes No		
1.7.2	Does this province have a copy of the malaria control M&E plan? **Ask for a copy**	Yes No		
1.7.3	Is there a person in the province that manages malaria control data full time or part time?	Yes No		
1.7.4	Does the M&E team have the equipment and funding to perform? (At least a computer + Printer and table+ chair in an enclosed	Yes No		

MPR- PROVINCIAL HEALTH TEAM TOOL

Name of province	
Names of Interviewer	
Date of interview	

Check List/ Question		**Assessment**	**Comments- Strengths and Weakness- Bottleneck/Constraints Lessons learnt -**	**Recommendation/ Change Proposed**
	office)			
1.7.5	Review the regular malaria morbidity and mortality reports submitted by the districts in this province and fill the table below			
1.7.6	Have the districts in this province been regularly reporting malaria morbidity and mortality data this year? **REVIEW THE TABLE ABOVE**	Yes No		
1.7.7	Is the malaria morbidity and mortality monitoring chart for the current year openly			

MPR- PROVINCIAL HEALTH TEAM TOOL

Name of province	
Names of Interviewer	
Date of interview	

Check List/ Question		Assessment	Comments- Strengths and Weakness- Bottleneck/Constraints Lessons learnt -	Recommendation/ Change Proposed
	displayed and up to date in this province? **LOOK FOR THE MONITORING CHART ON THE WALL**			
1.7.8	Are the districts given documented feedback on malaria morbidity and mortality in this district? **ASK FOR DOCUMENTED EVIDENCE OF FEEDBACK TO THE DISTRICTS**			
1.7.9	Is there a SME line item in this year's malaria budget in this province? **ASK FOR AND REVIEW THE DISTRICT**			

MPR- PROVINCIAL HEALTH TEAM TOOL

Name of province	
Names of Interviewer	
Date of interview	

Check List/ Question		**Assessment**	**Comments- Strengths and Weakness- Bottleneck/Constraints Lessons learnt -**	**Recommendation/ Change Proposed**
	MALARIA BUDGET FOR THIS YEAR			
1.7.10	Is there any vector control surveillance in the province (e.g. bioassay tests, insecticide resistance, vector behaviour)?	Yes No		
1.8 Status of district capacity building activities – annual or bi-annual retraining				
1.8.1	Is there a provincial malaria control training plan? **Ask to see the plan**	Yes No		
1.8.2	If yes, what is the frequency of training/retraining of frontline health workers?	Every year Every 2 years Irregular		
1.8.3	Is there an inventory of health workers trained on malaria control in the province by district and health facility? **Ask to see the list**	Yes No		

MPR- PROVINCIAL HEALTH TEAM TOOL

Name of province	
Names of Interviewer	
Date of interview	

Malaria profile in the district and the appropriateness of interventions being implemented

Check List/ Question	**Notes and comments**	**Recommendation/ Change Proposed**
2.1 Malaria endemicity or transmission patterns in the province		
2.2 Risk factors of malaria transmission in the province		

2.3 Current year populations at risk of malaria and malaria control interventions in the province by district

Names of districts	**Total Population for current year**	**Total Population at risk of malaria**	**Malaria interventions**

Check List/ Question	Notes and comments	Recommendation/ Change Proposed	Check List/ Question
2.4 The burden of malaria	2.4.1 Annual trends of total outpatient malaria cases (suspected + confirmed; Confirmed only) over the last 5 years		
	2.4.2 Annual trends of malaria total outpatient proportional morbidity over the last 5 years (suspected malaria; Confirmed malaria)		
	2.4.3 Annual trends of confirmed malaria		

MPR- PROVINCIAL HEALTH TEAM TOOL

Name of province	
Names of Interviewer	
Date of interview	

Check List/ Question	Notes and comments	Recommendation/ Change Proposed	Check List/ Question
	admissions over the last 5 years		
	2.4.4 Annual trends of proportional malaria (confirmed) admissions over the last 5 years		
	2.4.5 Inpatient Annual trends of malaria associated deaths over the last 5 years		
	2.4.6 Annual trends of proportional malaria (confirmed) mortality over the last 5 years		
2.5 Malaria Control Objectives			
2.6Targets	3.3.1 Coverage targets:		
	3.3.2 Access targets		
	3.3.3 Quality targets		
	3.3.4 Impact targets		
2.7 Are the interventions appropriate for the malaria profile in the province? (Yes/No) – Review table in 2.3 above			

2. Status of malaria control interventions

Check List/ Question		Notes and comments	Recommendation/ Change Proposed
3.1 Status of malaria vector control	3.4.1 LLINs distributed by year in the last 3 years	• Mass distribution: • Routine distribution to U1s: • Routine distribution to PW:	
	3.4.2 ITN ownership - %		

MPR- PROVINCIAL HEALTH TEAM TOOL

Name of province	
Names of Interviewer	
Date of interview	

Check List/ Question		Notes and comments	Recommendation/ Change Proposed
	Households with at least 1 LLIN		
	3.4.3 ITN use – % that slept under ITNs the previous night	• PW: • U5: • Total population at risk:	
	IRS coverage - % of targeted households sprayed		
3.2 Status of malaria case management	% of health facilities with no-stockouts of AL: 2007; 2008	• 2007: • 2008:	
	% of U5 accessing appropriate treatment within 24 hours		
3.3 Status of IPTp uptake	% of PW attending ANC		
	% of PW that received IPTp1		
	% of PW that received IPTp2		

MPR- PROVINCIAL HEALTH TEAM TOOL

Name of province	
Names of Interviewer	
Date of interview	

4 Provincial Malaria control challenges and recommendations

Challenges	Recommendations

MPR- DISTRICT HEALTH TEAM TOOL

Name of district	
Name of province	
Names of Interviewer	
Date of interview	

Introduction

The MPR at the district level focuses on confirming

1. the adequacy of the organization and management of malaria control at this level in terms of
   - 1.1 Availability of focal person for malaria control
   - 1.2 Availability and coordination of malaria control partnerships
   - 1.3 Availability of malaria control annual business or operational plans or malaria control activities within the healthy plan
   - 1.4 The status of resource mobilization and financing of malaria control activities
   - 1.5 Availability of appropriate malaria control guidelines and tools
   - 1.6 Adequacy of malaria control logistics: office space, office equipment, materials and supplies, transportation
   - 1.7 Status of malaria Surveillance, Supervision, monitoring and evaluation
2. The malaria profile in the district and the appropriateness of interventions being implemented
3. Status of malaria control interventions

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1. The adequacy of the organization and management of malaria control at this level in terms of

Check List/ Question		Assessment	Comments- Strengths and Weakness- Bottleneck/Constraints Lessons learnt -	Recommendation / Change Proposed
1.1 Availability of malaria control annual business or operational plans or malaria control activities within the healthy plan				
1.1.1	Is malaria control reflected in the district annual health plan or is there a separate annual district malaria control operational plan? **Ask for a copy of the plan.**	Yes No		
1.1.2	Does this district have a line item for malaria control in its	Yes No		

MPR- DISTRICT HEALTH TEAM TOOL

Name of district	
Name of province	
Names of Interviewer	
Date of interview	

Check List/ Question		**Assessment**	**Comments- Strengths and Weakness- Bottleneck/Constraints Lessons learnt -**	**Recommendation / Change Proposed**
	budget? **As for a copy of the budget**			
1.2 Availability of appropriate malaria control guidelines and tools				
1.2.1	Is there a copy of the national malaria control diagnostic and treatment guideline in the district health office? **Ask for a copy**	Yes No		
1.2.2	Does the district have IRS guidelines, training manuals? **Ask for a copy**	Yes No Not applicable (if the district is not targeted for IRS)		
1.2.3	Does the district possess LLINs distribution guidelines? **Ask for a copy**	Yes No		
1.2.4	Is there any IVM guidelines for malaria control in the district? **Ask for a copy**	Yes No		
1.2.5	Does the district have an EPR guidelines and/orcurrent EPR plan?	Yes No		

MPR- DISTRICT HEALTH TEAM TOOL

Name of district	
Name of province	
Names of Interviewer	
Date of interview	

Check List/ Question		**Assessment**	**Comments- Strengths and Weakness- Bottleneck/Constraints Lessons learnt -**	**Recommendation / Change Proposed**
	Ask for a copy	Not applicable (if the district is not epidemic prone)		

1.3 Malaria control logistics:				
1.3.1	Are there adequate logistics for malaria control (office space, office equipment, materials and supplies, storage facilities, transportation)? **Inspect the malaria control office**	Yes No		
1.3.2	Is there a copy of the procurement and supply management (PSM) standard operating procedures (SOPs) in the district health office? **Ask for a copy**	Yes No		
1.4 Availability of focal person for malaria control				
1.4.1	Does the district have a malaria control focal person?	Yes No		
1.4.2	What type of malaria focal person does the district have?	Dedicated Polyvalent		
1.5 Availability and coordination of malaria control partnerships				
1.5.1	Is there a mechanism for coordinating malaria control activities at the district level?	Yes No		

MPR- DISTRICT HEALTH TEAM TOOL

Name of district	
Name of province	
Names of Interviewer	
Date of interview	

1.5.2	If yes to 1.5.1, describe the coordination mechanism for malaria control in the district			
1.5.3	If yes to 1.5.1, what is the frequency of the coordination meetings?			
1.5.4	If yes to 1.5.1, what are the various stakeholders represented at the coordination meetings?			
1.5.5	If yes to 1.5.1, name the different partners and their contribution to malaria control in the district?			
1.6 The status of resource mobilization and financing of malaria control activities				
1.6.1	How much has this district invested in the control of malaria in the last 5 years (Fill the table below			

	AMOUNTS INVESTED IN MALARIA CONTROL (USD)					**TOTAL (USD)**
	Year 1	**Year 2**	**Year 3**	**Year 4**	**Year 5**	
1. Total District Health Budget						
2. Amount allocated to malaria control line item						
3. % of health budget allocated to malaria						
4. Amount actually spent on malaria control in the district						
5. % of malaria budget actually spent						

1.6.2	What are the sources of funding malaria control in the district?	

MPR- DISTRICT HEALTH TEAM TOOL

Name of district	
Name of province	
Names of Interviewer	
Date of interview	

Check List/ Question		**Assessment**	**Comments- Strengths and Weakness- Bottleneck/Constraints Lessons learnt -**	**Recommendation/ Change Proposed**
1.7Status of malaria Surveillance, Supervision, monitoring and evaluation				
1.7.1	Do you know of the existence of a malaria control monitoring and evaluation plan in this country	Yes No		
1.7.2	Does this district have a copy of the malaria control M&E plan? **Ask for a copy**	Yes No		
1.7.3	Is there a person in the district that manages malaria control data full time or part time?	Yes No		
1.7.4	Does the M&E team have the equipment and funding to perform? (At least a computer + Printer and table+ chair in an enclosed office)	Yes No		
1.7.5	Review the regular malaria morbidity and mortality reports submitted by the health facilities in this district and fill the table below			
1.7.6	Are the health facilities in this district regularly reporting malaria morbidity	Yes No		

MPR- DISTRICT HEALTH TEAM TOOL

Name of district	
Name of province	
Names of Interviewer	
Date of interview	

Check List/ Question		**Assessment**	**Comments- Strengths and Weakness- Bottleneck/Constraints Lessons learnt -**	**Recommendation/ Change Proposed**
	and mortality data this year? **REVIEW THE TABLE ABOVE**			
1.7.7	Is the malaria morbidity and mortality monitoring chart for the current year openly displayed and up to date in this district? **LOOK FOR THE MONITORING CHART ON THE WALL**			
1.7.8	Are the health facilities given documented feedback on malaria morbidity and mortality in this district? **ASK FOR DOCUMENTED EVIDENCE OF FEEDBACK TO THE HEALTH FACILITIES**			
1.7.9	Is there a SME line item in this year's malaria budget in this district? **ASK FOR AND REVIEW THE DISTRICT MALARIA BUDGET FOR THIS YEAR**			
1.7.10	Is there any vector control surveillance in the district (e.g. bioassay tests, insecticide resistance,	Yes No		

MPR- DISTRICT HEALTH TEAM TOOL

Name of district	
Name of province	
Names of Interviewer	
Date of interview	

Check List/ Question		**Assessment**	**Comments- Strengths and Weakness- Bottleneck/Constraints Lessons learnt -**	**Recommendation/ Change Proposed**
	vector behaviour)?			

MPR- DISTRICT HEALTH TEAM TOOL

Name of district	
Name of province	
Names of Interviewer	
Date of interview	

2. Malaria profile in the district and the appropriateness of interventions being implemented

Check List/ Question		Notes and comments	Recommendation/ Change Proposed
2.1 Malaria endemicity or transmission patterns in the district			
2.2 Risk factors of malaria transmission in the district			
2.3 Populations at risk of malaria in the district			
2.4 The burden of malaria	2.4.1 Annual trends of total outpatient malaria cases (suspected + confirmed; Confirmed only) over the last 5 years		
	2.4.2 Annual trends of malaria total outpatient proportional morbidity over the last 5 years (suspected malaria; Confirmed malaria)		
	2.4.3 Annual trends of confirmed malaria admissions over the last 5 years		
	2.4.4 Annual trends of proportional malaria (confirmed) admissions over the last 5 years		
	2.4.5 Inpatient Annual trends of malaria associated deaths over the last 5 years		
	2.4.6 Annual trends of proportional malaria (confirmed) mortality over the last 5 years		

MPR- DISTRICT HEALTH TEAM TOOL

Name of district	
Name of province	
Names of Interviewer	
Date of interview	

Check List/ Question		Notes and comments	Recommendation/ Change Proposed
2.5 Malaria Control Objectives			
2.6 Malaria control interventions being implemented in the district			
2.7Targets	3.3.1 Coverage targets:		
	3.3.2 Access targets		
	3.3.3 Quality targets		
	3.3.4 Impact targets		
2.8 Are the interventions appropriate for the malaria profile in the district? (Yes/No)			

MPR- DISTRICT HEALTH TEAM TOOL

Name of district	
Name of province	
Names of Interviewer	
Date of interview	

3. Status of malaria control interventions

Check List/ Question		Notes and comments	Recommendation/ Change Proposed
3.1 Status of malaria vector control	3.4.1 LLINs distributed by year in the last 3 years	• Mass distribution: • Routine distribution to U1s: • Routine distribution to PW:	
	3.4.2 ITN ownership - % Households with at least 1 LLIN		
	3.4.3 ITN use – % that slept under ITNs the previous night	• PW: • U5: • Total population at risk:	
	IRS coverage - % of targeted households sprayed		
4.2 Status of malaria case management	% of health facilities with no-stockouts of AL: 2007; 2008	• 2007: • 2008:	
	% of U5 accessing appropriate treatment within 24 hours		
3.3 Status of IPTp uptake	% of PW attending ANC		
	% of PW that received IPTp1		
	% of PW that received IPTp2		

MPR- DISTRICT HEALTH TEAM TOOL

Name of district	
Name of province	
Names of Interviewer	
Date of interview	

5 District Malaria control challenges and recommendations

Challenges	Recommendations

Province	District	PHC Name	CHW Name

Malaria Programme Performance Review (MPR)

COMMUNITY HEALTH WORKER INTERVIEW

The following tools are to be used in an interview witha community health worker or community health workers selected for interview around the primary health facility which the Review Team has visited. It is expected that for each PHC one community worker will be interviewed and will be used as key informant for the review team.

	Check List/ Question	Assessment
	Have you been trained in a general training on malaria?	Yes ☐ No ☐
	Who provided training?	1 = Ministry of Health Staff (any level) 4 = Other (specify)……
	Have you been trained in all areas of malaria promotion, prevention treatment and cure?	Yes ☐ No ☐
	Did you have refresher training within last 12 months?	Yes ☐ No ☐
	Do you have educational and teaching materials such as brochures, posters, flip charts etc	Yes ☐ No ☐
	Do you have a malaria medicine kit?	Yes ☐ No ☐
	Do you have a bicycle?	Yes ☐ No ☐
	What malaria services do you provide?	1 = distribution of LLIN 2 = fever diagnosis with RDT and treatment with ACT 3 = treatment with ACT;4 = Other (specify)

Province	District	PHC Name	CHW Name

	Check List/ Question	Assessment
	Do you get regular supplies of LLIN and RDT and ACT?	Yes ☐ No ☐
	Do you provide regular household visits in your catchment area for malaria education and other services?	Yes ☐ No ☐
	What services do you provide during the household visits?	1 = Hanging up and utilization of LLIN 2 = Fever diagnosis with RDT and treatment with ACT 3 = Treatment with ACT 4 = Other (specify)……
	If you provide treatment, do you directly observe treatment of the first dose of the treatment, especially for ACTs?	Yes ☐ No ☐
	Do you follow up patients to check if they complete their treatment and are cured?	Yes ☐ No ☐
	Do you have a register for LLIN distribution?	Yes ☐ No ☐
	Do you have a register for malaria diagnosis and treatment?	Yes ☐ No ☐ ☐
	How frequently do you report to the nearest health facility?	1.= No reporting 2 = Yes weekly reporting 2 = Yes monthly reporting 2 = Yes quarterly reporting 3 = Other (specify)……
		Yes ☐ No ☐
20	Name three things that	1:

Province	District	PHC Name	CHW Name

	you think the malaria programme is doing well in your community?	
		2:
		3:
21	Name three most important things that you think are constraints to malaria control in your community.	1:
		2:
		3:
22	What do you advise the malaria programme does to mitigate these constraints?	1:
		2:
		3:

Province	District	PHC Name	CHW Name

Malaria Programme Performance Review (MPR)

COMMUNITY INTERVIEW

The following tools are to be used in a group discussion with community members of a selected community around the primary health facility which the Review Team has visited. The composition of the community members will consist of an equal number of men and women and should consist of leaders and other key informants. The number of the group should be between 8 and 12 people. The interview will be conducted as in a focus group discussion; however, the note taking will focus on main areas of concern for the MPR. The answers taken in the frame below will reflect the main responses as agreed by the community members.

	Check List/ Question	Assessment
1	**Do you know or have you heard about malaria before?**	Yes ☐ No ☐
2	**Where do you get information on malaria prevention and control?**	1 = Newspapers/Radio/TV 2 = Hospital/Clinic/ Health centre 3 = Field health extension workers or Community health workers and volunteers 4 = Posters 9 = Other (specify)……
3	**During which months of the year are mosquitoes and malaria worst?**	
4	**What causes malaria to increase during these months?**	1 = Pools of water 2 = Heavy rainfall 3 = Tall grass 4 = Other Specify……..
5	**What methods do you know of that are used to protect yourselves and your families against malaria?**	1 = None 2 = Plain mosquito nets 3 = Insecticide treated mosquito nets or Indoor Residual Spraying 5 = Larviciding

Province	District	PHC Name	CHW Name

	Check List/ Question	Assessment
		6 = Other appropriate environmental management methods 13. = Other (specify)……
6	**In general, do families/households have long lasting insecticide-treated mosquito nets (LLIN) or insecticide treated nets (ITNs)?**	Yes ☐ No ☐
7	**Do you pay for ITNs/LLINs?**	Yes ☐ No ☐
8	**Generally, where do families/households get their ITNs/ LLINs in this community?**	1 = Free from routine delivery from PHC 2 = Free from Campaigns 8 = Retail from Shops
9	**In your opinion, on average how many ITNs/LLINs per family/household are there in this community?**	1 = None 2 = only one 3 = Two or more
10	**Why do some families/households not own ITNs/LLINs?**	1 = Cost 2 = Not available 3 . Other (specify)……
11	**Were your homes sprayed in the last 12 months?**	Yes ☐ No ☐
12	**When a member of your families is sick of malaria where do they get medical treatment?**	1 = from a health facility/health workeer 2 = from a shop/grocery 3 = nowhere
13	**Do you pay for microscopy and RDTs?**	Yes ☐ No ☐
14	**Do you pay for ACTs?**	Yes ☐ No ☐
15	**Is there a community health worker or health extension worker who serves your community?**	Yes ☐ No ☐
16	**When he/she visits you and you have malaria**	Ye ☐

Province	District	PHC Name	CHW Name

	Check List/ Question	Assessment
	does he/she do malaria tests?	s ☐ No ☐
17	**When he/she visits you and you have malaria does he give you drugs for treatment of malaria?**	Yes ☐ No ☐
	When your children are sick with fever, after how long do you seek for treatment	1 = less than 6 hours 2 = more than 12 hours 3=more than 24 hours
18	**How long does it take the community to walk to the nearest Clinic /health centre?**	1 = less than 1 hour 2 = more than 1 hour
19	**When you visit the health facility, do they have drugs in stock for treatment of malaria?**	Yes ☐ No ☐
20	**Name three things that you think the malaria programme is doing well in your community?**	1: 2: 3:
21	**Name three most important things that you think are constraints to malaria control in your community.**	1: 2: 3:
22	**What do you advise the malaria programme does to mitigate these constraints?**	1:

Province	District	PHC Name	CHW Name

3. COMMUNITY CHECKLIST/QUESTIONNAIRE SUMMARY:

Area of Assessment	Highly Adequate	Adequate	Present but not adequate	Not adequate at all	Comment
	3	2	1	0	
Malaria Information	Community has highly adequate access to malaria information through all key channels. It is difficult to do more and better.	Community has adequate access to malaria information through radio, health facilities and other appropriate channels	Community has access to malaria information through a channel which targets one subset of the community	Community has very limited access to malaria information.	
2. Community has access to LLIN with household record card					
3. Community Household are sprayed with IRS once a year with a house hold record card					
4. Community has access to community based diagnosis with RDT and treatment with ACT					
4. Community household					

Province	District	PHC Name	CHW Name

Area of Assessment	Highly Adequate	Adequate	Present but not adequate	Not adequate at all	Comment
have adequate visits at least once a month by community health workers and health extension field workers.					
5. Community has adequate access to clinics or health centres with adequate supplies of malaria commodities					