



SADC Malaria Status by 2012 Report



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Table of Contents

Acknowledgements	1
Abbreviations	4
Executive Summary	5
1. Introduction and Background	7
Report Development Methodology	7
2. Overview of the Malaria Situation in the SADC Region	7
2.1 Epidemiology	8
2.2 Disease Burden	8
Morbidity	8
Mortality	8
2.3 The Gender Dimension	8
2.4 The Malaria/HIV Epidemic	9
2.5 Malaria Drugs and Other Commodities	9
3.0 Progress towards Malaria Control and Elimination in the SADC Region	10
3.1 Tracking Progress towards Regional, Continental and Global Commitments	10
3.2 Tracking Progress towards Meeting Regional, Continental and Global Commitments by SADC MS	10
3.2.1 Progress Made by MS in the control/consolidation phase in 2012	11
3.2.2 Progress Made by E8 Frontline SADC MS	18
3.2.3 Progress in Malaria Free MS	23
3.3 Emerging Good Practices	24
3.4 SADC Regional Response to the Malaria Burden	24
4.0 Status of Cross Border Initiatives in the SADC Region	25
5.0 Gaps and Challenges	26
5.1 Gaps and Challenges by MS category	26
5.1.1 MS in Control/Consolidating Phase of the Elimination Pathway	26
5.1.2 MS in or orienting programs for pre-elimination	26
5.1.3 MS with no local malaria transmission	26
5.2. Policy Gaps	26
5.3 Gaps and Challenges at Regional Level	27
5.4 Challenges in Malaria Control	27



6.0	Recommendations	27
6.1	Recommendations for MS in Control/Consolidating Phase of the Elimination Pathway	27
6.2	Recommendations for MS in or orienting programs for pre-elimination	28
6.3	Cross –cutting recommendations	28
6.4	Recommendations for the Regional level	28
7.0	Annexes	29
7.1	Annex 1: Glossary of Common Terms and Definitions	29
7.2	Annex 3: Global Declarations Commitments and Targets	29
7.3	Annex 4: Global Partnerships and Initiatives in Support of Malaria Control	31

Table of Figures

Figure 1: Malaria Incidence in MS 2010-2012	12
Figure 2: Percentage Confirmed Malaria Cases (2009-2012)	12
Figure 3: Malaria Deaths in MS (2009-2012)	13
Figure 4: Percentage of Deaths Attributable to Malaria	14
Figure 5: Malaria Deaths Disaggregated Age	14
Figure 6: Target Population Covered with IRS by MS 2009-2012	15
Figure 7: LLINs Coverage in MS	16
Figure 8: Percentage Pregnant Women Sleeping under LLINs in MS	16
Figure 9: LLINs Utilization by Children below Five Years	17
Figure 10: IPTp Uptake during Pregnancy in MS	18
Figure 11: Malaria Incidence in the E8 Frontline MS	19
Figure 12: Trend in Imported Malaria Cases in Swaziland 2009-2012	19
Figure 13; Malaria Case Confirmation in MS	20
Figure 14: Number of Malaria Deaths in Frontline E8 MS	20
Figure 15: IRS Coverage in the Four Frontline E8 MS	21
Figure 16: Case Confirmation and Investigation in Low Malaria incidence MS for 2012	22
Figure 17: Number of Imported Cases in Mauritius	23
Figure 18: Imported Malaria Cases in Seychelles	23
Figure 19: Pathway to Malaria Elimination	31



ACRONYMS AND ABBREVIATIONS

ADB	African Development Bank
ACT	Artemisinin-based combination therapy
AIDS	Acquired immunodeficiency syndrome
ANC	Antenatal care
BCC	Behavior change communication
DDT	Dichlorodiphenyltrichloroethane
DHS	Demographic Health Surveys
DRC	Democratic Republic of Congo
GFATM	Global Fund to Fight AIDS, Tuberculosis, Malaria
HIV	Human immunodeficiency virus
IEC	Information, education and communication
IRS	Indoor Residual Spraying
IPTp	Intermittent Preventive Treatment
ITN	Insecticide-treated nets
LLIN	Long-lasting Insecticidal Nets
M&E	Monitoring and Evaluation
MICS	Multiple Indicator Cluster Survey
MIP	Malaria in Pregnancy
MIS	Malaria Indicator Survey
MS	Member State
NMCP	National Malaria Control Programme
PMI	President's Malaria Initiative
RBM	Roll Back Malaria
RDT	Rapid Diagnostic Test
RSA	Republic of South Africa
SADC	South African Development Community
SAMC	Southern Africa Malaria Control
SARN	Southern Africa Roll Back Malaria Network
SP	Sulphadoxine-Pyrimethamine
SUFI	Scaling Up for Impact
URT-Mainland	United Republic of Tanzania Mainland
URT-Zanzibar	United Republic of Tanzania – Zanzibar



Executive Summary

Articles 9 and 11 of the SADC Protocol on Health (Maputo, August 1999) calls upon Member States to harmonize and standardize policies pertaining to malaria control and urges Member States to efficiently utilize resources, harmonize goals, policies, guidelines, protocols and interventions and coordinate operational research for the effective control of malaria. The SADC malaria reports of 2010 and 2011 have progressively tracked Member State progress towards malaria control and elimination against global, regional and continental goals that SADC has committed to through the SADC Malaria Strategic Framework and the SADC Malaria Elimination Framework. This third annual report builds on the previous reports and will:

- Assess progress in the control and elimination of malaria in the SADC region against global and regional commitments;
- Document SADC initiatives at regional level
- Identify best practices, implementation challenges and constraints
- Make recommendations in support of accelerated regional movement towards achieving malaria transmission reduction and elimination

This report was developed through an initial desk review of Member State (MS) malaria program and performance review reports followed by an iterative process that enabled Member States to input into the report and finally validate it through a consensus building process. The key limitations in the development of this report were delayed submission of reports and the need to follow up Member States post report submission to fill in data gaps. Additionally for some outcome indicators direct comparison between States was not possible as indicator surveys are not synchronized such that data points were available at different times for different countries. It was also noted in this process that there is an urgent need to revise the reporting formats and related indicators to align with current epidemiological classification of Member States.

The major findings were that at regional level a number of important initiatives to support Member States have been undertaken. Notable among these are: generation and approval of SADC pooled procurement strategy; initiation of the process to set up centres of excellence for human resource and quality assurance, including specialized laboratories. In 2012 SADC continued its advocacy activities through events such as the SADC malaria day which was successfully hosted in Manhiça, Mozambique on 11 November 2012, with the Minister of Health for Mozambique officiating.

A capacity building agenda has been initiated to train MS on the SADC Policy on Surveillance and Databases in order to harmonise and strengthen regional disease surveillance. Cross border activities continued but need strengthening especially for countries lined up for elimination. It is unlikely that the frontline elimination countries will achieve their goal if cross border malaria is not fully and effectively functional. Key challenges and constraints at regional level constitute limited human and financial resources and effective partner coordination that will ensure that activities are focused on the SADC agenda and resources are maximized.

This report analysed MS progress by grouping them according to their epidemiological classification and elimination categorization. Key findings will consequently be reported using these categories.

For MS that are in the control/consolidation phase (medium to high malaria transmission) namely the Angola, the Democratic Republic of Congo (DRC), Madagascar, Malawi, Mozambique, Tanzania, Zambia and Zimbabwe, the key findings were that: both malaria incidence and mortality declined for Angola, Malawi and Tanzania in 2012; malaria incidence declined for Zimbabwe but increased for DRC and Zambia. Zimbabwe registered more deaths in 2012 over 2011. Striking was the discord between malaria incidence data and mortality data for DRC, which the program attributed to challenges in having a common definition of malaria at different levels of the health care delivery system and using different health information sources. Key challenges raised by this group of countries related to commodity stock outs, insufficient funds for universal coverage, weak quality assurance systems.

Countries with low malaria transmission (E8 frontline states) that is Botswana, Namibia, Swaziland and South Africa have increased their capacity to confirm malaria cases. Botswana, Swaziland and South Africa have oriented their programs for elimination and are differentiating local and imported cases and in addition Botswana and Swaziland have surveillance systems in place that not only identify cases but also investigate and follow them up. This group of countries have reduced their malaria incidence by over 75% over 2000 values and have a very low burden of deaths (3-70) per year. However, of concern is the persistently higher deaths reported by South Africa when compared to the other MS in this group. Of equal concern is the upswing in incidence observed for Swaziland which is correlated to the trend in imported cases. This underscores the need for effect cross border malaria control. Botswana, Namibia and Swaziland, which currently have annual deaths in the range of 3-4 per annum can achieve near zero deaths by 2015. Key challenges cited by these MS were timely acquisition of commodities, porous borders that cause a large proportion of imported cases (South Africa and Swaziland only had 36% and 32% local cases of all malaria cases detected in the country showing that there was a high burden of imported malaria). Human resource with appropriate skills was also cited as a constraint.



MS with no local transmission, Lesotho, Mauritius, Seychelles were also considered. In this group Mauritius and Seychelles have strong surveillance and case management systems. They are competently managing imported malaria, although Mauritius reported one death and 3 introduced cases of malaria (from a visitor). Of concern is the fact that Lesotho is not proactively looking for malaria and it is important that the MS be supported to commence these activities. A challenge for this group is a standardized reporting system for SADC reporting and instituting an effective malaria surveillance and management system for Lesotho.

Across the three categories of MS the following issues were prioritized as most critical for success: a revised standardised reporting format that caters for all epidemiological categories and takes into account indicators relevant to current strategies of malaria control and elimination; strengthened surveillance, monitoring and evaluation; stable and sustainable financing mechanisms; a roadmap for cross border malaria control; roadmap for sustaining high intervention coverage as a pre-requisite for malaria elimination.

Resulting from challenges and propositions made by MS the following recommendations are made:

Recommendations for MS in Control/Consolidating Phase of the Elimination Pathway

- MS should utilize national RBM partnerships to keep their epidemiological profiles updated
- MS reporting difficulty in standardizing case definitions along the continuum of healthcare could approach their country level RBM partners or WHO to support them in producing standardized job aides& help raise funds for capacitating health personnel in using and monitoring the use of these
- MS could consider the setting aside of contingency funds to meet unexpected shortfalls from regular sources
- MS should use local RBM partnerships to develop roadmaps for rapidly scaling up diagnostic capacity and quality assurance systems and utilize the centres of excellence being set up by SADC to support these activities

Recommendations for MS in or orienting programs for pre-elimination

- Country level partners should be approached to assist through capacitating and secondment of staff to meet shortfalls in skilled human resource to address the needs of the elimination agenda

Recommendations for MS with zero malaria transmission

- There is an urgent need for Lesotho to put a surveillance and malaria case management system in place to address imported malaria

Recommendations for the Regional level

To support country MS, SADC should:

- Establish a partnership coordination system that allows SADC to be in control of directing the strategic direction and activities of malaria control and elimination in the region
- Review the SADC malaria reporting format and indicators in order to meet the updated requirements of an elimination agenda
- Strengthen surveillance, monitoring and evaluation
- Develop a roadmap for sustaining high intervention coverage as a pre-requisite for elimination be developed for SADC
- Support Lesotho to set up a malaria surveillance and case management system
- Develop a regional policy and roadmap around cross border malaria control to define scope, financing & coordination mechanism
- Develop a competency framework for malaria elimination that will guide MS to develop training curricula to ensure that all required knowledge and skills for efficient implementation of malaria control and elimination activities are captured. This will avoid ad hoc training and help forward planning;
- Accelerate the development of the regional funding mechanism that it is already working on;
- Support MS to strengthen supply management capability
- Recruit more personnel at regional level to support an accelerated agenda towards elimination



1. Introduction and Background

In line with the requirements of the SADC Protocol on Health (Maputo, August 1999) articles 9 and 11, the SADC Secretariat prepares an annual analytical report on the status of malaria in the SADC region. The key guidance documents in the preparation of this annual report are the SADC Malaria Strategic Framework (2007-2015), SADC Malaria Elimination Framework, and the SADC minimum standards for malaria control (2010).

The aim of this report is to:

- Assess progress in the control and elimination of malaria in the SADC region against global and regional commitments;
- Capture emerging good practices as reported by SADC Member States (MS)
- Document SADC initiatives at regional level
- Identify constraints and offer recommendations

This report is expected to contribute to enhanced collaboration and learning as well as to trigger critical action necessary to control and finally eliminate malaria. The focus of the report is the calendar year 2012 and builds on the 2010 and 2011 reports. The report structure is as follows:

- Introduction & Background – to include methodology and limitations in preparing this report
- Overview of the malaria situation in the SADC region – a discussion of epidemiology and disease burden; gender dimensions; malaria/HIV epidemic; malaria drugs and other commodities
- Progress towards malaria control and elimination in the SADC Region - a determination of progress towards meeting regional, continental and global targets in general and specifically for the SADC region; enumeration of emerging good practices; SADC Regional response to the malaria burden; and the status of cross border malaria control
- Status of cross border initiatives in the SADC region
- Gaps and challenges –a discussion of policy and program gaps and challenges in malaria control
- Recommendations
- Annexes

Report Development Methodology

The primary methodology for this report was a desk review of SADC MS Annual reports supplemented by other MS documents such as Malaria Indicator Survey and Program Review reports, and data submitted by SADC MS to WHO for the world malaria report. Peer reviewed articles were referenced and quoted for technical issues of relevance to malaria control. Additional requisite information was obtained from respective programs through e-mail communication, and as necessary by telephone. Initial drafts were circulated by e-mail for review and validation. A near final draft was presented at the Consensus meeting hosted by the SADC Secretariat for this purpose. A final draft was then prepared for presentation at the annual SADC Ministers' meeting.

Secondary data was used in the preparation of this report and data quality could not be assured at the level of this report. Secondly the HMIS through which most of the country data is generated is not of the same strength in all MS, resulting in missing data for some indicators. Thirdly some MS had challenges in submitting their reports on time.

It was also noted that to facilitate reporting and meeting the needs of the changed malaria epidemiology of SADC the current data collection tool should be revised to cater for all epidemiological categories.

2. Overview of the Malaria Situation in the SADC Region

Malaria continues to be a disease of public health concern globally with an estimated annual burden of 219 million cases and 660000 deaths in 2012¹. Of the reported deaths, 90% are in Africa where the six highest burden countries carrying 47% of the global malaria burden are located. Three of these six countries are in the SADC region, namely Democratic Republic of Congo (DRC), Mozambique and Tanzania. Further, all except three SADC MS have endemic malaria, although transmission levels vary widely. The WHO estimates that 75% of people who reside in SADC are at risk of malaria, and approximately 35 million and 8.5 million of these are children under the age of five years and pregnant women, respectively. This represents a significant social and economic burden for SADC².

1 http://www.who.int/malaria/publications/world_malaria_report_2012/wmr2012_factsheet.pdf
 2 <http://www.rbm.who.int/countryaction/docs/sarn/sarnSCMeetingSep2009.pdf>



2.1 Epidemiology

With increased global and local malaria funding, a revived global drive to eliminate malaria and increased focus on partnership coordination, the epidemiology of malaria in endemic SADC MS has changed and several epidemiological strata exist within individual countries. In MS that have registered success with the scaling up for impact strategy (SUIFI), the malaria burden has been reduced significantly and the epidemiology of malaria has changed with remaining parasite reservoirs increasingly being clustered in small geographic areas (hotspots). There has also been an observance of a shift from the traditionally vulnerable populations of children under the age of five years and pregnant women to older children and men with reducing malaria incidence such that sub-populations with shared social, behavioural and geographic risk characteristics exhibit demographically clustered malaria cases (hot populations or hot-pops)³. SADC MS affected by malaria can be broadly categorized into those that are firmly in the consolidation or control phase (8) with malaria incidences ranging from 5cases/1000 to over 300 cases/1000 population; and 4 MS with substantially lower malaria incidence rates of less than 5 case/1000 population that have or are in the process of reorienting their programs for malaria elimination.

In MS with high transmission, malaria can account for up to 20% of childhood deaths, in excess of 30% outpatient visits and 40% hospitalizations.

Ninety three (93%) to 99% of malaria cases in the SADC region are caused by *Plasmodium falciparum* and the rest is attributable to *P. malariae* and *P. ovale*, except for Madagascar which also has *P. vivax* malaria. Mauritius and Seychelles also reported imported *P.vivax* malaria in 2011. *P. vivax* and *P. ovale* can lie dormant in the liver for several months to years and cause relapsing malaria, posing further challenges for both malaria treatment and elimination.

The major mosquito vectors in SADC are *Anopheles funestus*, *Anopheles gambiae* and *Anopheles arabiensis*. Lesotho (historically malaria free), Mauritius and Seychelles do not have evidence of local transmission.

Geographic and climatic differences, urbanization, conflict, population movement, agricultural activities, and the extent of deployment of interventions to control malaria are additional factors that impact on epidemiological patterns in SADC.

2.2 Disease Burden

Morbidity

The malaria burden has declined significantly in the last decade in the SADC region as a consequence of increased coverage of interventions to prevent and control malaria. Botswana, Namibia, Swaziland, and South Africa have reduced the malaria incidence by over 75% in the period 2000 to 2011⁴ Madagascar and Zambia are expected to reduce incidence by 50-75% by 2015. However, the DRC, Tanzania and Mozambique, although making progress, still have a significant burden of malaria in terms of malaria cases. As a region, the positivity rate for malaria among febrile cases has been reported to be 44%⁵, constituting a significant regional disease burden.

Mortality

There has been a downward trend in malaria deaths for 7 out of 8 MS, namely, Angola, Madagascar, Mozambique, Namibia, Tanzania, Zambia, and Zimbabwe. MS Botswana, Swaziland and South Africa have low death burden in the range of 3-80 deaths per annum. In high incidence malaria endemic areas, deaths occur mainly in young children below the age of five years with cerebral malaria and anaemia being common complications. This does not necessarily hold in low malaria endemic areas. It should be noted however that there are still MS with very high numbers of deaths due to malaria per year such as MS DRC (in excess of 21000 malaria deaths in 2012).

2.3 The Gender Dimension

SADC MS recognize the importance of gender dimensions in access to health care services and interventions to prevent malaria. The region has minimized gender inequities through adopting strategies such as universal coverage with efficacious interventions to prevent malaria such as LLINS. As the epidemiology of malaria changes and new vulnerability patterns emerge the SADC MS have intent to monitor gender issues in malaria more closely.

3 Cotter C. et al. (2013)www.thelancet.com [Online] April 15, 2013 [http://dx.doi.org/10.1016/50140-736\(13\)60310-4](http://dx.doi.org/10.1016/50140-736(13)60310-4)

4 www.who.int/malaria/publications/world_malaria_report_2012/

5 Mid-term Review of the SADC Malaria Strategic Framework 2007-2015



2.4 The Malaria/HIV Epidemic

SADC MS affected by malaria are also affected by HIV/AIDS. These two conditions are mutually accentuating: HIV infection increases susceptibility to malaria, increases episodes of malaria and brings about geographic expansion of malaria in areas of high HIV prevalence^{6,7}; on the other hand malaria infection increases viral loads and provides an ideal environment for the rapid replication and spread of HIV virus particles to other immune cells in the body⁸. HIV infected patients are more likely to develop severe malaria and more likely to die^{9,10} particularly in areas of unstable malaria. Further anti-retroviral therapy (ART) has an impact on the number of transmissible malaria parasites (gametocytes) and therefore increases malaria transmission. Protease Inhibitor based ART is associated with lower gametocyte generation and lower incidence of malaria and non-nucleoside reverse transcriptase inhibitor-based ART is linked with significantly elevated blood numbers of gametocytes and higher incidence of malaria¹¹.

HIV co-infection impairs the ability of pregnant women to control malaria and an HIV prevalence of 10-40% results in a proportional increase of malaria during pregnancy attributable to malaria of 5.5-18.8%¹².

An important area of enquiry is the interaction between anti malaria drugs and drug cocktails to manage HIV/AIDS, including effectiveness of anti-malaria drugs in the different clinical stages of HIV/AIDS.

The interactions between malaria and HIV infections constitute a significant public health concern and have implications for both malaria and HIV control programs in the SADC region. Dually affected MS need to foster close collaboration between malaria and HIV control programs and commission relevant research so that interventions are designed and targeted effectively in order to achieve the elimination goal.

2.5 Malaria Drugs and Other Commodities

The consistent availability of commodities at the point of need is critical for the success of any control or elimination program. Commodities must not only be adequate and available at the right time but they must also be efficacious. The SADC region has four key strategies for the control of malaria: Use of Long Lasting Insecticide Treated Nets (LLINs); Case management based on objectively diagnosed malaria; Indoor residual spraying and for high transmission areas, intermittent preventive treatment (IPTp) during pregnancy. The critical commodities for the SADC region based on current mainline interventions are: LLINs treated with an efficacious insecticide; artemisinin based combination (ACTs) therapeutic drugs that are effective against the parasite; Sulphadoxine-Pyrimethamine (SP) for IPTp; insecticide for IRS; and rapid diagnostic kits/microscopy for malaria diagnosis.

In 2012, only two MS in SADC identified a commodity gap for ACTs (and IPTp). Three MS identified commodity gaps for rapid diagnostic kits and laboratory reagents; and 5 MS reported a gap for LLINs (Table 1). These observations indicate that even with increased funding, the region has to monitor the availability of commodities to ensure that gains made are sustained and that progress towards achieving set goals is continued.

Resistant parasite strains to ACTs have been reported in South East Asia and this threat is real for SADC and it is important that the efficacy of ACTs is guarded. In this regard it is important that entry and distribution of sub-standard drugs and mono-therapies that accelerate the development of drug resistance is prevented.

Insecticide resistance has been reported in Madagascar, Malawi, Mozambique, Tanzania and Zambia for DDT; Madagascar, Malawi, Tanzania, Zambia and Zimbabwe for pyrethroids; and Madagascar for carbamates¹³. Insecticide resistance to pyrethroids is particularly serious for LLINs as currently this is the only class of insecticides used for this purpose. Research is required to identify new insecticides.

The SADC region, is actively addressing the issue of DDT supply since at the moment there is only one manufacturer in India. This is not only logistically challenging but also likely to become increasingly expensive as the company has a monopoly.

A number of MS are putting in place additional malaria control interventions such as the use of bio-larvicides, notably MS Angola, however commodity requirements and quantification are a work in progress

6 Raddad et al. (2006) Science 314 (5805) 1603-1606
 7 Hochmann and Kim (2009) Interdisciplinary perspectives on infectious diseases Article ID 617954 doi.1155/2009/617954
 8 Alemu, A. et al. (2013) Parasites and Vectors, 6 pp. 18
 9 Grimwade K., et.al. (2004) AIDS 18(3) pp. 547-554
 10 Alemu, A. et al. (2013) Parasites and Vectors, 6 pp. 18
 11 Ikiliezi G.et.al. (2013) American Journal of Tropical Medicine & Hygiene 88(4) pp. 744-746
 12 Ter Kuille et al. (2004) Am. Soc. Trop. Med. Hyg. 71 (Suppl.2) pp. 41-54
 13 WHO Africa Regional Office

Table 1: Commodity Gaps in Member States¹⁴

Commodity Gaps 2012							
MS	LLINs (numbers)	ACTs -doses	Diagnostics	IRS	IPTp (doses)	US\$ gap	
			RDTs	Microscopic			
Diagnosis							
Angola	168584	4197384			361243		
	608948	2528701					
Malawi	425038						
Mozambiq.			3,184,452	471800			3806400
Namibia	14525						94412
South Africa	0	0	0	0	0	0	0
Swaziland	0	0	0	0	0	0	0
Tanzania		9,010,133					6,480,000
T-Zanzibar	45774	10790	449449	87584	0	85943	229824000
Zambia	1,567,444	302,524	4,833,442				12,696,971
Zimbabwe							1800000

3.0 Progress towards Malaria Control and Elimination in the SADC Region

There has been an acceleration of malaria control in the last decade that has resulted in progress in malaria control at global, continental and regional levels. This section will discuss global gains as well as specific SADC region progress in malaria control. This progress is measured against targets highlighted in annex 7.2.

3.1 Tracking Progress towards Regional, Continental and Global Commitments

The focused, accelerated global actions to control malaria have culminated into the saving of over 1.1 million lives worldwide accompanied by a 26% reduction in malaria mortality. Africa has seen a 33.3% decline in malaria deaths with substantive reduction in malaria morbidity. Globally 50 countries are on track to achieving the target to reduce malaria incidence by 75% by 2015 (compared to 2000 levels). The Africa region has 43 malaria affected countries and 8 of these – Algeria, **Botswana**, Cape Verde, **Namibia**, Rwanda, Sao Tome and Principe, **South Africa** and **Swaziland** have already achieved reductions in malaria incidence or malaria admission rates of 75% or more over 2000 levels. The island of Zanzibar in Tanzania also falls in this category.

Madagascar and **Zambia** are expected to achieve 50%-75% reductions in malaria admissions by 2015¹⁵.

3.2 Tracking Progress towards Meeting Regional, Continental and Global Commitments by SADC MS

The SADC region has described its specific roadmaps and commitments in the SADC Malaria Strategic Framework (2007-2015) and the SADC Malaria Elimination Framework which outline performance targets and milestones (Annex 7.2).

This section will discuss progress made by SADC MS in 2012 using 2009-2011 as comparator years. The MS will be discussed in subdivisions that are aligned to the E8¹⁶ classification of MS and epidemiological status, namely:

- **MS in the control/consolidation phase, (including second line elimination countries)** - Angola, DRC, Madagascar, Malawi, Mozambique, Tanzania, Zambia, Zimbabwe. These countries characteristically have high to medium malaria transmission

14 Member State Roadmaps submitted to WHO available at: http://www.rollbackmalaria.org/countryaction/southAfrica_roadmap2011.html

15 World Malaria Report, 2012

16 Elimination 8 (E8) launched in SADC in March 2009



- **Frontline E8 MS re-orienting for the pre-elimination phase** – Botswana, Namibia, Swaziland, South Africa characteristically with low malaria transmission and prioritized for malaria elimination
- **Malaria free MS preventing re-entry of malaria** – Lesotho, Mauritius, and Seychelles with no local transmission of malaria

The key interventions employed by the SADC region to reduce malaria transmission are integrated vector management (mainly Long- lasting insecticide treated nets (LLINs) and in door residual spraying (IRS)) and case management (using Artemisinin based combination therapy (ACT) and Intermittent preventive treatment during pregnancy (IPTp) in high prevalence malaria endemic areas. Larviciding is done on a country by country basis. For example in Angola bio-larvicides are a major component of the strategy of selective vector control in major foci of disease transmission in the country. The MS uses biological products (*Bacillus thuringiensis israelensis* “Bti” and *Bacillus sphaericus* ‘Bs’) to control mosquito larval populations and so reduce malaria transmission.

Surveillance, behaviour change communication and advocacy activities are integral aspects of all malaria control programs in the SADC region.

Proactive and reactive case detection, case investigation, and classification are indicated for MS that have low parasite prevalence and are re-orienting their programs for malaria elimination. The MS that are currently malaria free are focused on prompt identification, diagnosis, and treatment of imported malaria cases to ensure that malaria is not reintroduced (Mauritius and Seychelles) or introduced (Lesotho). Mauritius has high vectorial capacity and therefore has stringent measures for surveillance in place to avoid re-establishment of malaria.

The main indicators currently tracked by the SADC region are: *Percentage of confirmed malaria cases; Malaria cases per 1,000 population; Percentage of deaths attributed to malaria disaggregated by age group; Proportion of population in IRS target areas covered with IRS in the last 12 months; Proportion of household residents who slept under an insecticide-treated net the previous night (disaggregated by age and pregnant women); % of pregnant women protected by IPTp (at least 2 doses) during pregnancy*

Progress will be discussed according to epidemiological categorization

3.2.1 Progress Made by MS in the control/consolidation phase in 2012

MS in the control/consolidation phase comprise eight MS, four of which are lined up as second line elimination states (Angola, Mozambique, Zambia and Zimbabwe) and four which are not (Democratic Republic of Congo (DRC), Madagascar, Malawi and Tanzania). Impact measures of progress for these MS are malaria incidence and mortality; and at outcome and process levels indicators that relate to LLINs, IRS and Case management, including IPTp are tracked.

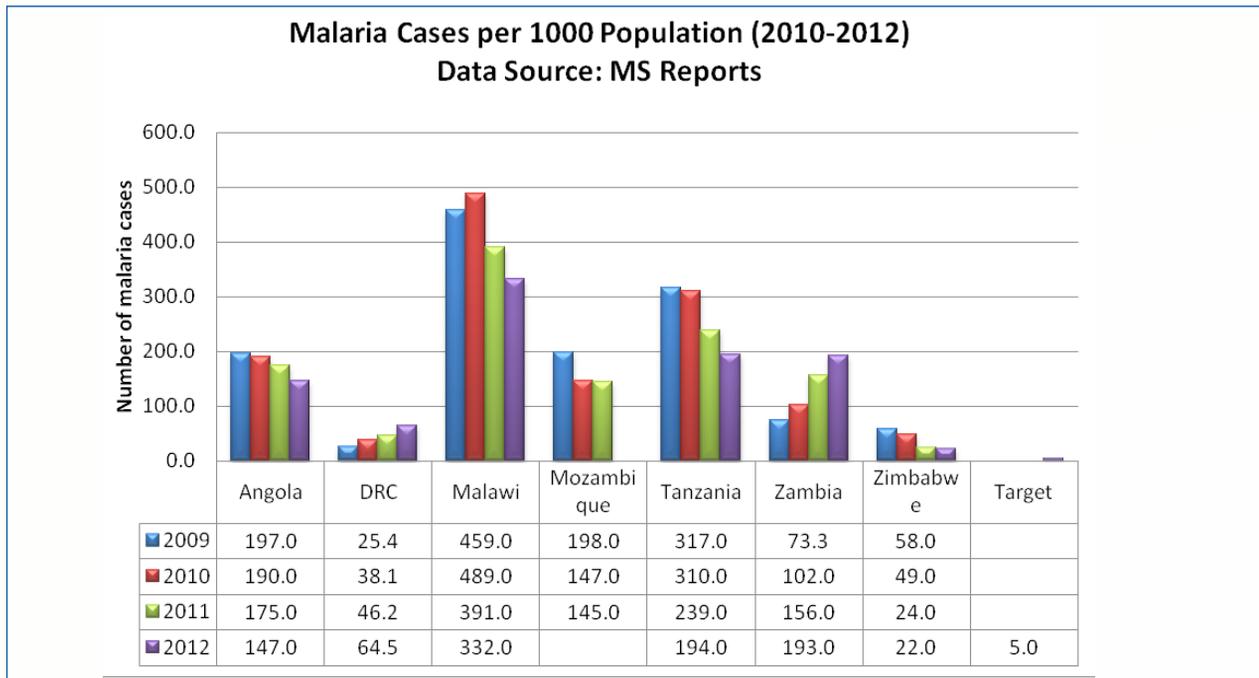
3.2.1.1 Malaria Incidence and Malaria Mortality

Malaria Incidence

The performance of MS in terms of malaria incidence expressed as number of malaria cases per 1000 population is shown in Figure 1, which shows that of the five MS that submitted reports, two are showing an upward trend (losing gains) and three are showing declines in incidence. This presents a mixed picture of success and raises concerns about the ability of MS to sustain gains in malaria control as the region aspires for a malaria free SADC. Some MS reports indicated that data quality may be affected by non-standardization of case definitions (with consequent misclassification of cases), and weak quality assurance for laboratory diagnosis. It was also noted in some MS reports that sustaining universal coverage with LLINs was currently unattainable. Inability to sustain universal coverage would definitely lead to some of the losses in gains observed here, but it is also possible that there are other factors involved to do with population movements and behaviours, climate, and even changes in vector dynamics. It is critically important for affected MS to investigate the negative trends so that appropriate action can be taken. Unreliable data makes it difficult to accurately assess progress; with an elimination goal in mind it is prudent to effectively address data quality issues. It is important to note that although the incidence in DRC looks low relative to other MS, DRC is a vast population and a vast territory that poses challenges in capturing all malaria cases for parasitological confirmation. The incidence rates are based on confirmed malaria cases. It is therefore important to sustain both financial and technical support for malaria control in DRC

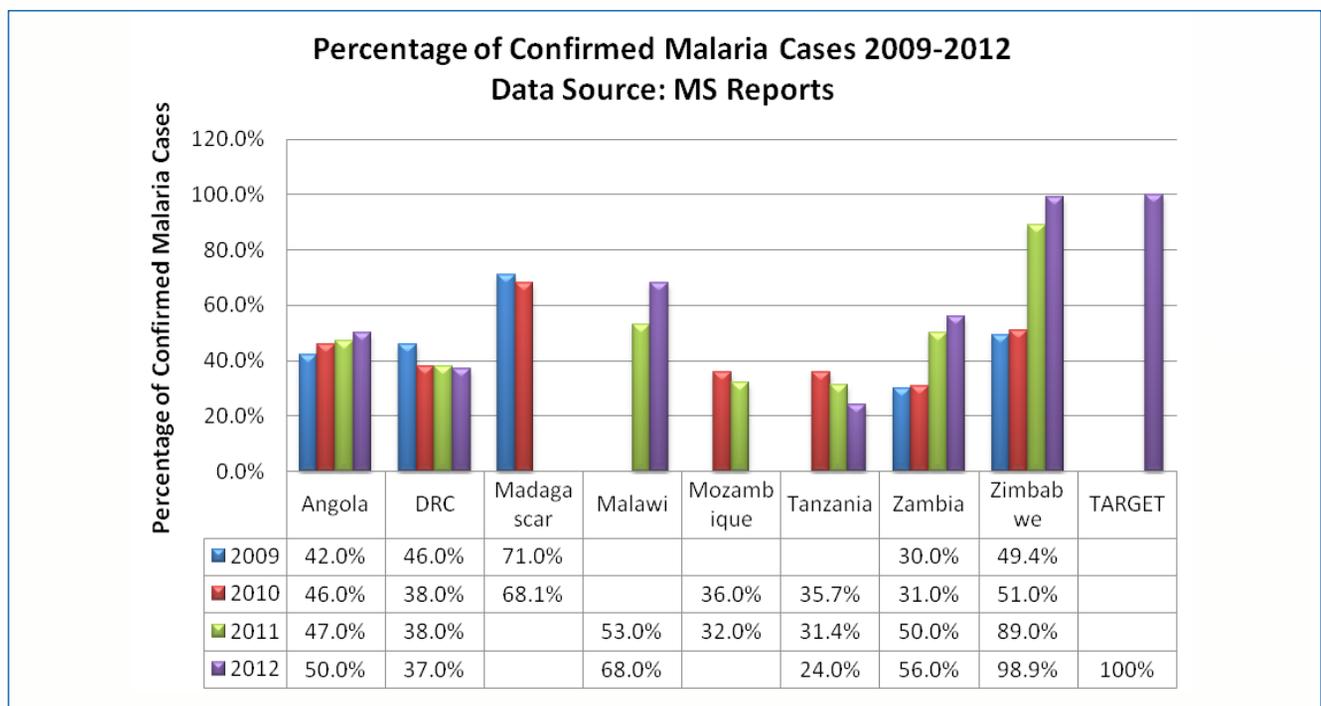


Figure 1: Malaria Incidence in MS 2010-2012



MS also monitor the percentage of cases that are confirmed by a diagnostic test (Percentage of confirmed malaria cases). Figure 2 shows the performance of MS with respect to this indicator. For the five MS for which 2012 data was available, all but one are showing steady improvement in this indicator, suggesting increased diagnostic capability which is important as countries move towards elimination. The current global target to which SADC subscribes is that 100% of suspected cases of malaria should receive a diagnostic test by 2013 for the public sector and by 2015 for the private sector. This indicator is critically important for assessing the real burden of malaria. Figure 2 shows that as at 2012, 4 out of the 6 MS that reported on this indicator are diagnosing over 50% of the cases, the highest detection rate being 98.9%. Good progress has been made and with accelerated action the targets for 2013 and 2015 could be achieved. .

Figure 2: Percentage Confirmed Malaria Cases (2009-2012)





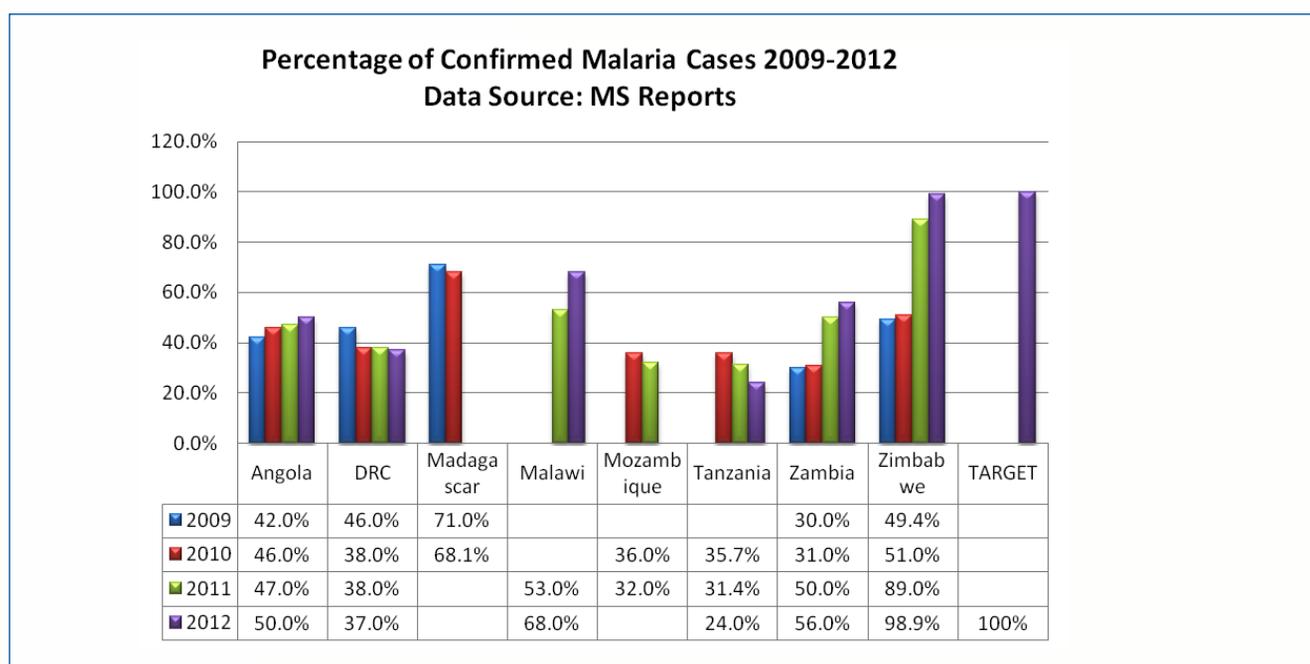
Malaria Mortality

Deaths due to malaria are showing an overall downward trend in the SADC region. Out of the six MS that reported the total deaths due to malaria, four namely Angola, Malawi, Mozambique and Tanzania have declining trends for mortality; deaths in DRC declined in 2012 over the 2011 data but a clear downward trend is not evident. Zimbabwe recorded a 33% increase in number of deaths in 2012 compared to 2011 (Figure 3). It is not clear what the cause of this upsurge was but it is important for the MS to investigate the matter and take appropriate action. Nevertheless Zimbabwe has considerable fewer deaths due to malaria compared to other MS in this category. It is possible that this MS can achieve near zero deaths by 2015.

For those MS that reported percentage of deaths attributable to malaria (Figure 4), Malawi and Tanzania are showing clear downward trends indicating a reduction in malaria deaths; DRC and Mozambique have remained static over the past three years.

Mortality as an impact indicator is affected by many factors ranging from patient behaviour to health systems related issues. For instance health seeking behaviour, weak referral systems, competency of health care workers, diagnostic capacity, and availability of efficacious case management commodities can lead to increased mortality. Another aspect is the quality of data that is being provided through the HMIS – this can under – or over – estimate mortality data. Individual MS that still have high malaria death burdens could benefit from in depth investigation and analysis of impeding factors to identify their unique issues and be supported to address them effectively.

Figure 3: Malaria Deaths in MS (2009-2012)



Angola, DRC, Malawi and Tanzania reflect the higher death burdens in children under the age of five (Figure 5). The exception is Zimbabwe where more adults die than children possibly because vulnerability patterns tend to change as malaria transmission decreases (Zimbabwe recorded 22 malaria cases/1000 population in 2012).

There is an evident disconnect between morbidity and mortality data for DRC, possibly due to the fact that the statistics come out of two different information systems where the definition of malaria differ.



Figure 4: Percentage of Deaths Attributable to Malaria

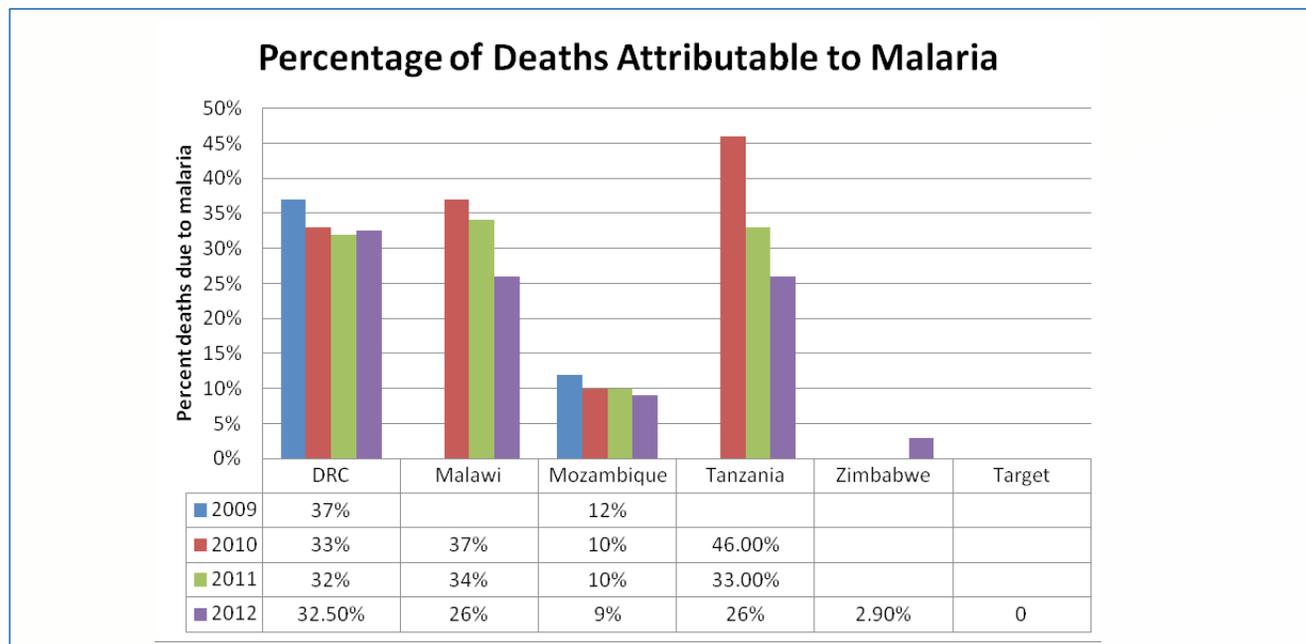
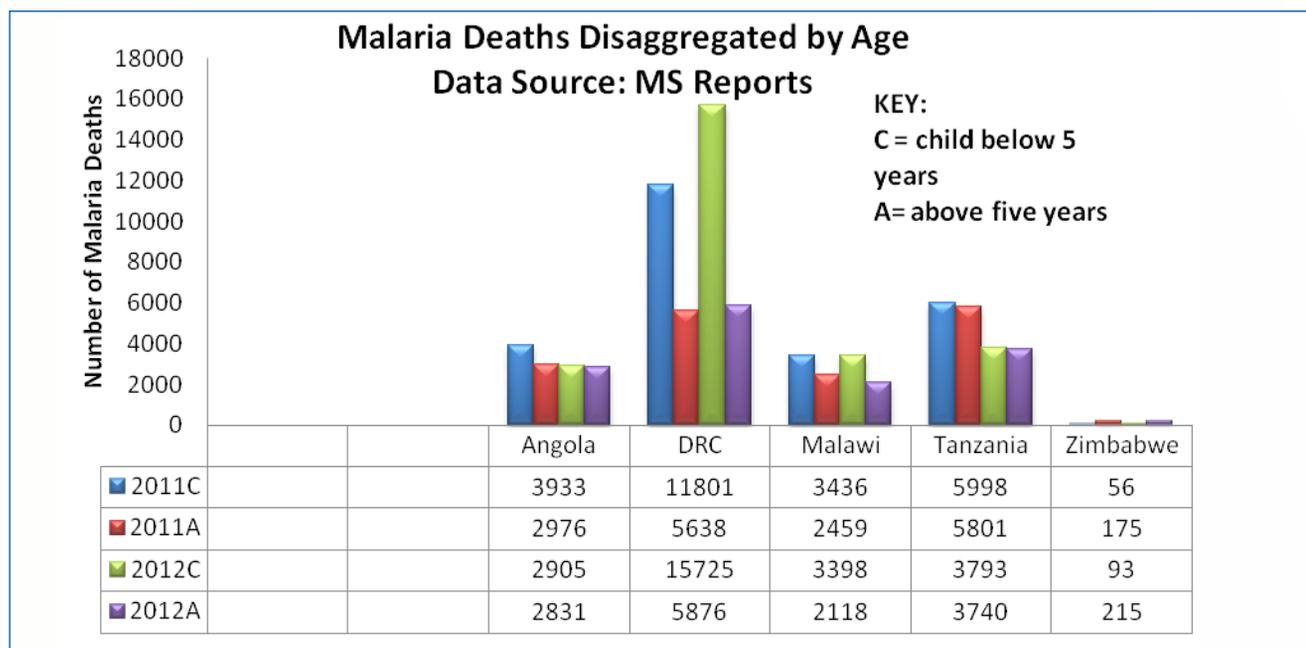


Figure 5: Malaria Deaths Disaggregated Age



Highlights on Impact Indicators

Achievements:

- Steady gains in diagnostic capacity to confirm malaria cases (important for proper quantification and monitoring of the real malaria burden)
- General decline in malaria incidence over four years for Angola, Malawi, Tanzania and Zimbabwe (4 MS) in this category
- Mortality is on the decline for 3/5 MS that reported in this category of 8 MS



Concerns:

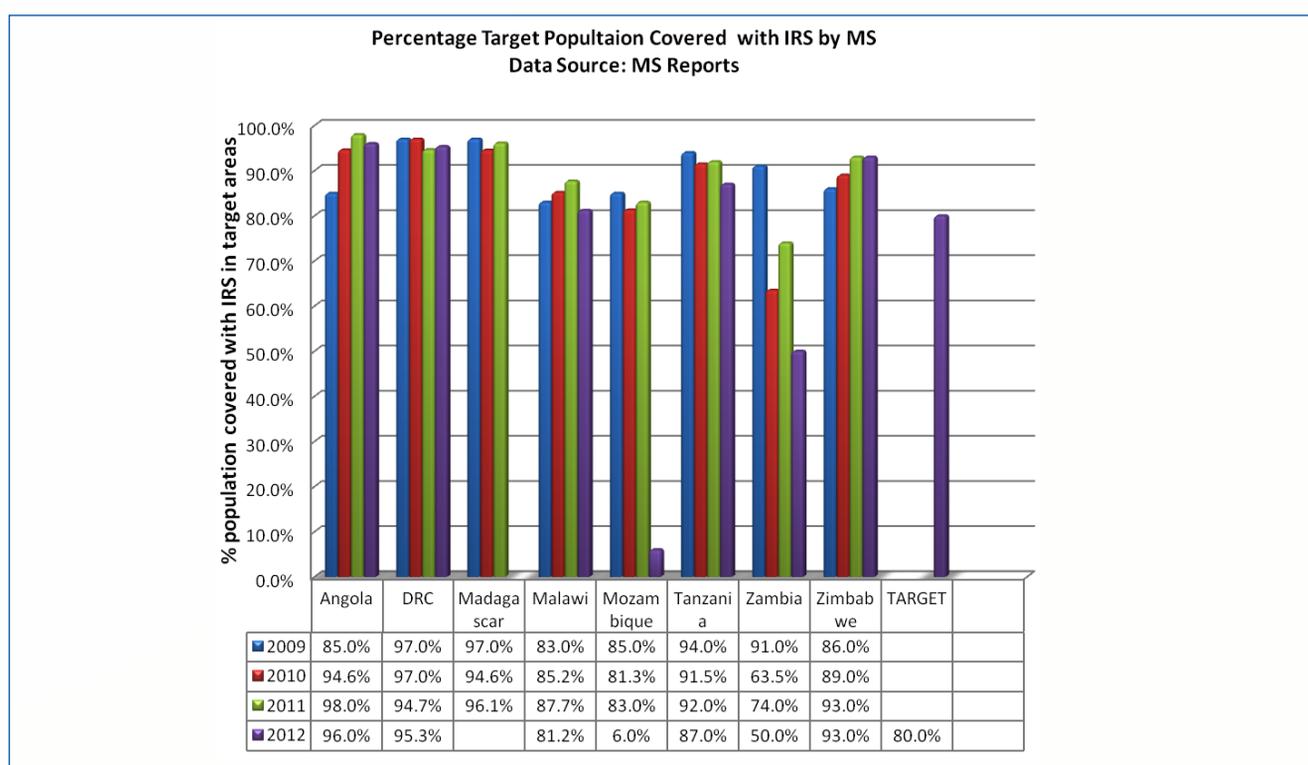
- DRC and Zambia showing a rise in malaria incidence over a four year period
- One MS (Zimbabwe) showing significant rise in malaria deaths in 2012 relative to 2011
- Sustaining universal coverage after mass campaigns is proving difficult
- Quality assurance for laboratory diagnosis (important for malaria data reliability) is still weak
- Adequately covering wide geographic areas with malaria control interventions
- Case definition for malaria not standardised across the entirety of the health care system giving rise to inaccuracies in malaria data.

3.2.1.2 Integrated Vector Management

The key interventions under integrated vector management (IVM) in the SADC region are LLINs and IRS and the region tracks coverage and utilization under these interventions. The key indicators monitored are “Proportion of population in IRS target areas covered with IRS in the last 12 months” and “Proportion of household residents who slept under an insecticide-treated net the previous night” (disaggregate by age and pregnant women).

Figure 6 shows the performance of MS in relation to IRS coverage in target populations. All the countries that reported on this indicator except two exceeded the target of 80%, reflecting good performance for this intervention.

Figure 6: Target Population Covered with IRS by MS 2009-2012

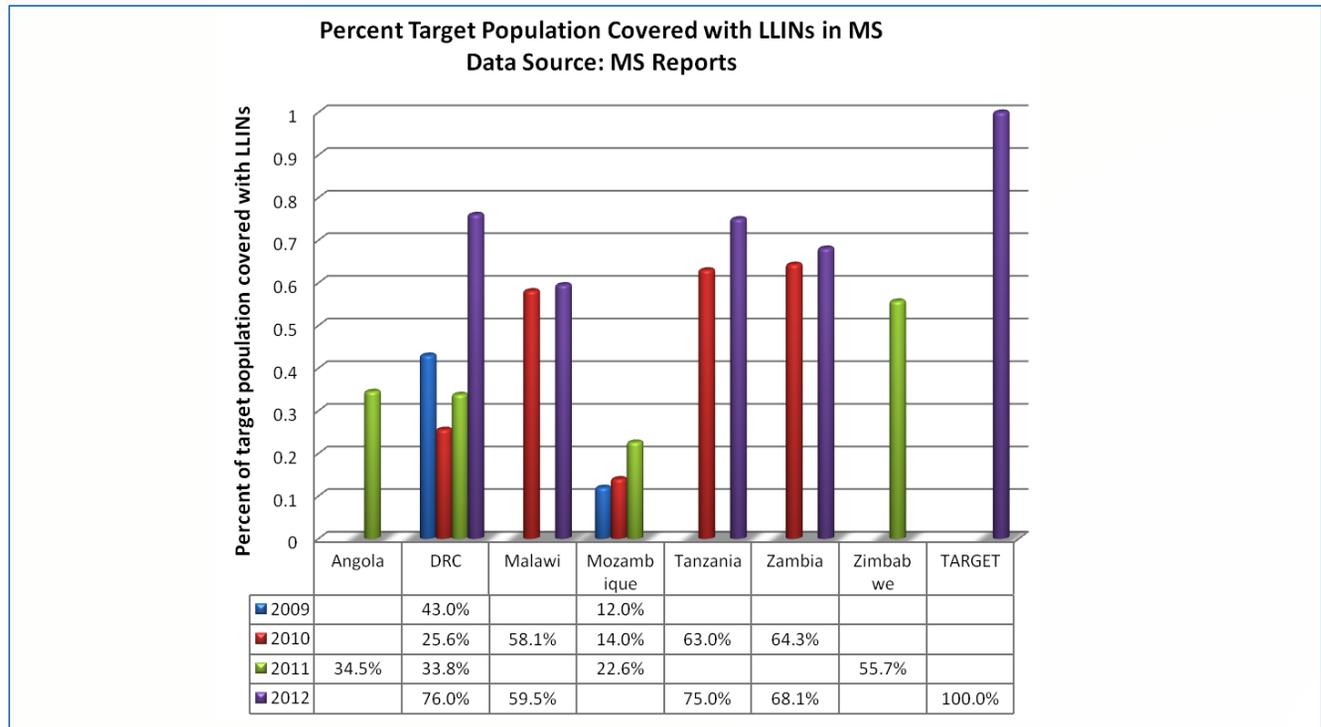


Two MS Mozambique and Zambia had challenges with this indicator with Mozambique showing the biggest drop in coverage. The MS suffered from a lack of funds for the activity in 2012 as GFATM funds were not released and consequently only PMI supported areas remained functional. This underscores the need to expedite the mobilization of regional resources to sustain gains in performance.

Figure 7 reflects the performance of MS in relation to coverage of target populations with LLINs. All the MS that reported on this indicator for 2012 are showing an upward trend in coverage (range 35-76%), and with continued support MS with over 60% coverage can attain universal coverage by 2013. Universal coverage is indispensable to attaining low malaria prevalence that will allow MS to re-orient their programs for pre-elimination.



Figure 7: LLINs Coverage in MS



Figures 8 and 9 demonstrate the rate of utilization of LLINs by pregnant women and children under the age of five years, respectively. The RBM target of 80% was not achieved by MS for either category; one MS (Tanzania) exceeded the Abuja target of 60% for both categories. Utilization of LLINs remains a challenge for SADC MS and the causes are likely to be related to behaviours of recipient populations and the appropriateness of BCC/IEC messages and activities. Innovation will be required to ensure that high utilization rates are attained so that maximum benefit can be derived from this intervention. MS may need to evaluate the effectiveness of current BCC/IEC messages and activities and identify hindrances and needful actions.

Figure 8: Percentage Pregnant Women Sleeping under LLINs in MS

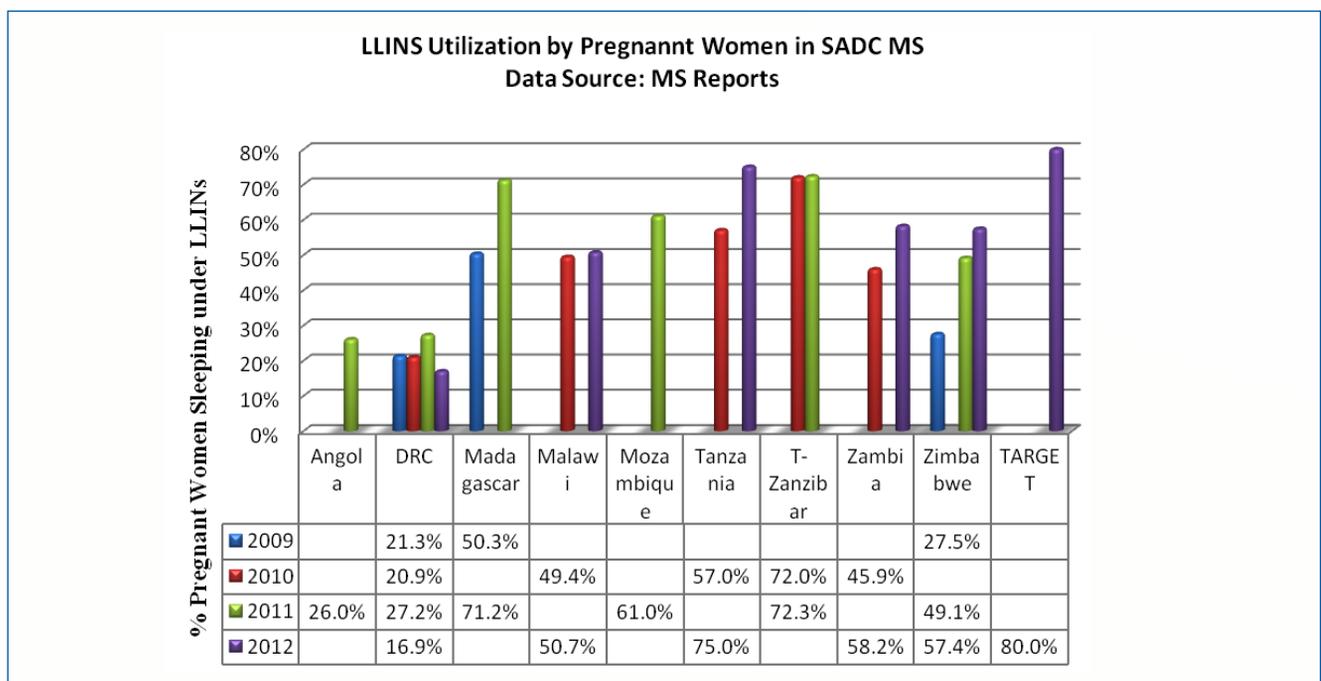
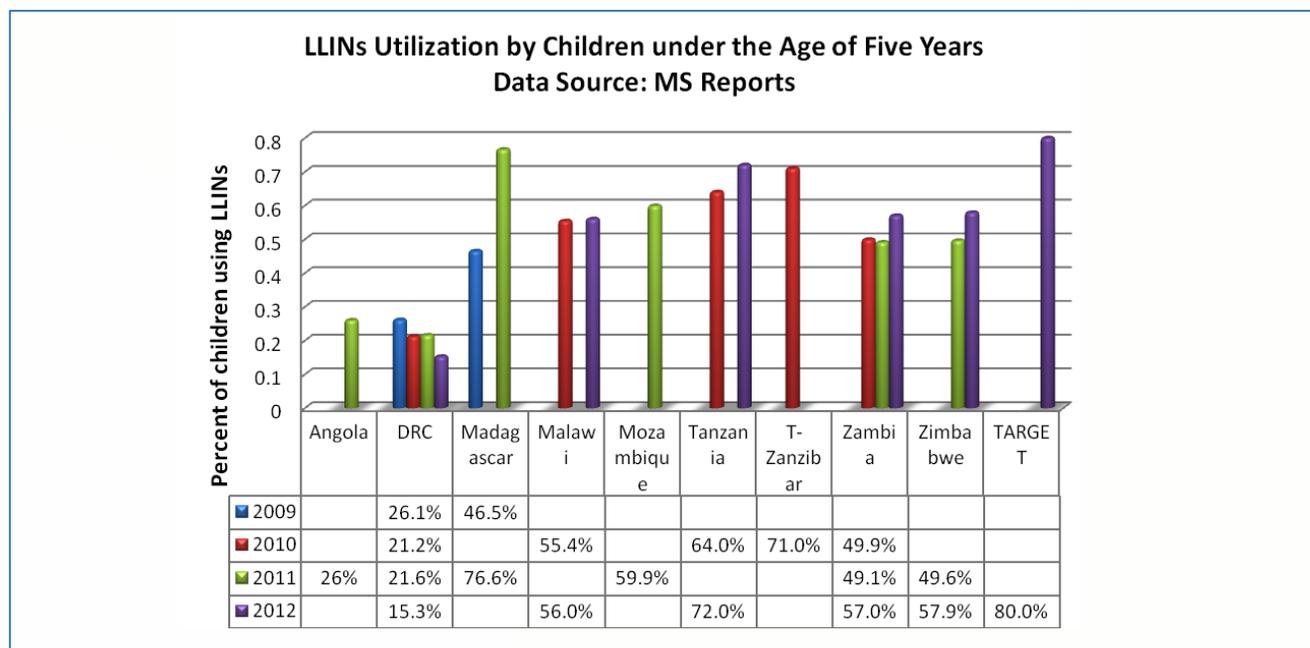




Figure 9: LLINs Utilization by Children below Five Years



Although IRS and LLINs are the mainstay of vector control in the SADC region MS are progressively introducing Larviciding activities. MS Angola adopted Larviciding as a programmatic intervention in 2009 for selective vector control in major foci of disease transmission in the country. Angola has successfully used this approach to demonstrate malaria transmission reduction. MS Tanzania is also implementing Larviciding on a small scale in Dar-es-Salaam with a high coverage of breeding sites in targeted areas (99.2%). The effectiveness of larviciding as a scalable programmatic intervention has yet to be evaluated.

Highlights on Integrated Vector Management (IVM)

Achievements:

- All except one MS in this category have IRS coverage in excess of the target 80%
- LLIN coverage is steadily increasing except for one MS among those that reported
- Except for one MS, use of LLINs by children and pregnant women is increasing with one MS (Tanzania) exceeding the Abuja target of 60% for both groups.

Concerns:

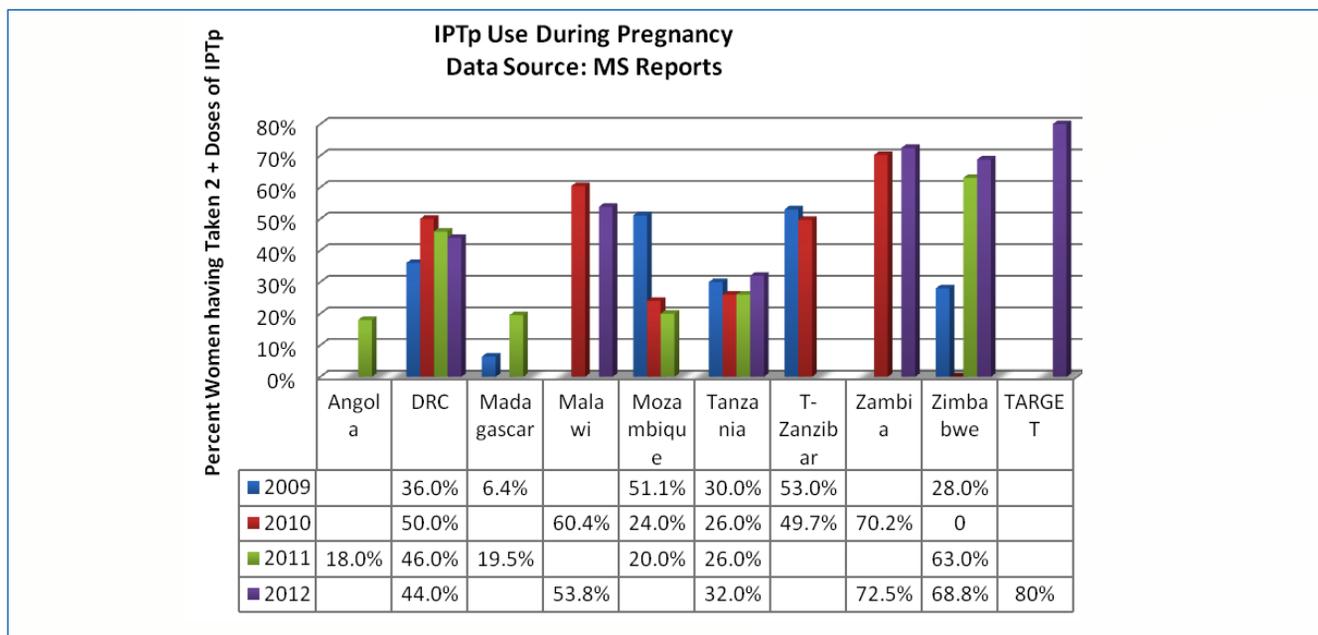
- Universal LLINs coverage by 2013 may not be achieved by SADC without aggressive action
- LLIN use is not increasing rapidly enough to ensure maximum benefit from the intervention
- Large geographic areas that need to be covered
- Financing for sufficient LLINs to achieve and sustain universal coverage over time
- Lack of consistent financing for IRS is detrimental for otherwise successful programs

3.2.1.3 Intermittent Preventive Treatment during Pregnancy (IPTp)

SADC MS with endemic stable malaria implement intermittent preventive treatment with Sulfadoxine-Pyrimethamine (SP) and measure per cent of pregnant women that receive at least two doses of SP during pregnancy. Figure 10 shows some progress in uptake but only 2 MS have attained the Abuja target of 60% and none have yet reached the RBM target of 80%. An overview of the progress over four years reveals low increments in uptake and is suggestive of critical challenges being faced by MS. Some MS have attributed this to late attendance by pregnant women at Antenatal Clinics, but it could also be a reflection of inappropriate BCC/IEC packages.



Figure 10: IPTp Uptake during Pregnancy in MS



MS cited challenges in determining the denominator for this indicator particularly in view of those pregnant women that were not eligible for IPTp because they are on cotrimoxazole prophylaxis or have other contra-indications but are counted as first ANC attendants (the denominator for this indicator). Stock outs of SP were also said to be a challenge. The less than desired uptake of this intervention was attributed to late presentation of clients at health facilities, initial guidelines that did not allow for giving of IPTp at 36 months, long distances to health facilities, low ANC attendance for DRC and weak collaboration between national malaria control programs and reproductive health programs.

3.2.2 Progress Made by E8 Frontline SADC MS

The E8 four frontline states are Botswana, Namibia, South Africa and Swaziland. E8 is a platform for deliberation on a regional approach to malaria elimination¹⁷. This section will discuss the achievements of these four MS in line with the interventions they are implementing as low malaria prevalence countries. The key interventions in these MS are integrated vector management, surveillance and case management, including supportive activities such as BCC, advocacy and capacity building of human resource. Case investigation is indicated for these MS.

3.2.2.1 Malaria incidence and mortality in the four E8 frontline MS

The frontline E8 MS track the key impact indicators of malaria incidence and mortality shows the trends in the last four years. Two of these MS are showing steady declines in incidence, one has a mixed picture that is close to stagnation, and the other is showing an increase in incidence. This data includes both local and imported cases of malaria. Key challenges highlighted by MS in this category include high proportions of imported cases. For instance of 221 cases investigated in Swaziland, 149 (67%) were imported. In South Africa, of the 5247 cases recorded, 3210 (61.2%) were imported. Imported cases are therefore a significant burden to these countries and these are likely to delay progression to elimination. The observed upward trend in malaria incidence for Swaziland is most likely attributable to imported cases as a parallel increase in reported imported cases is evident over the same period of time (figure 12). This puts emphasis on the need for the SADC region to strengthen cross border malaria control.



Figure 11: Malaria Incidence in the E8 Frontline MS

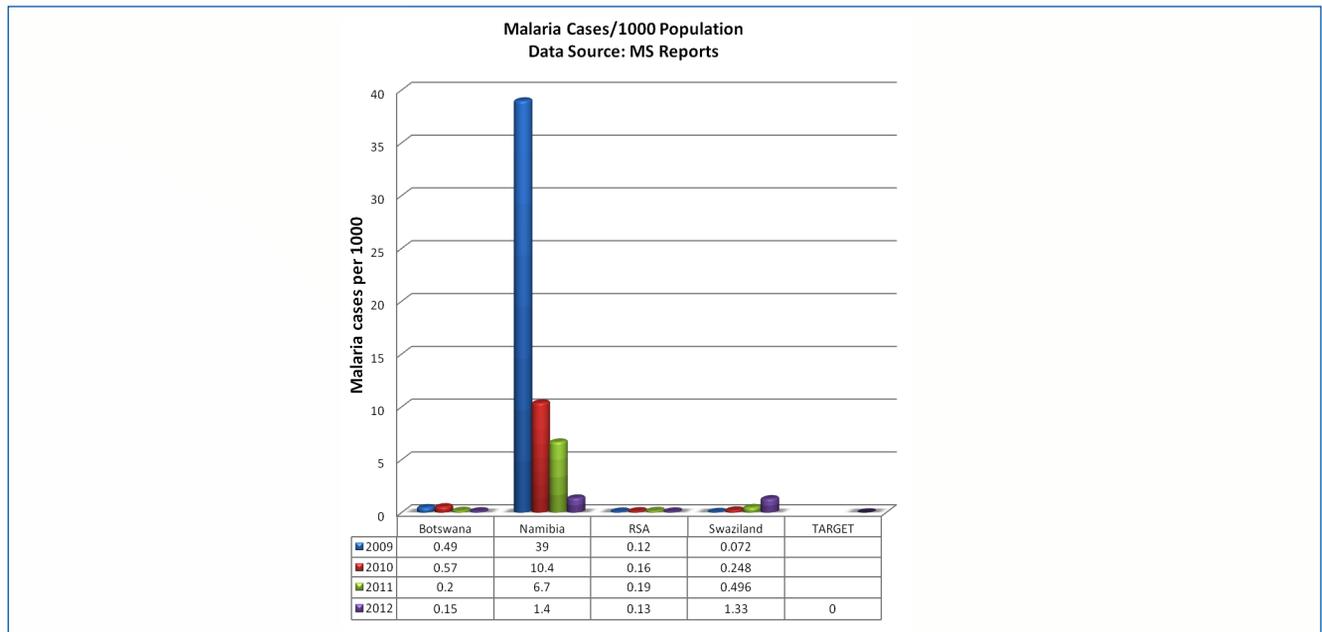
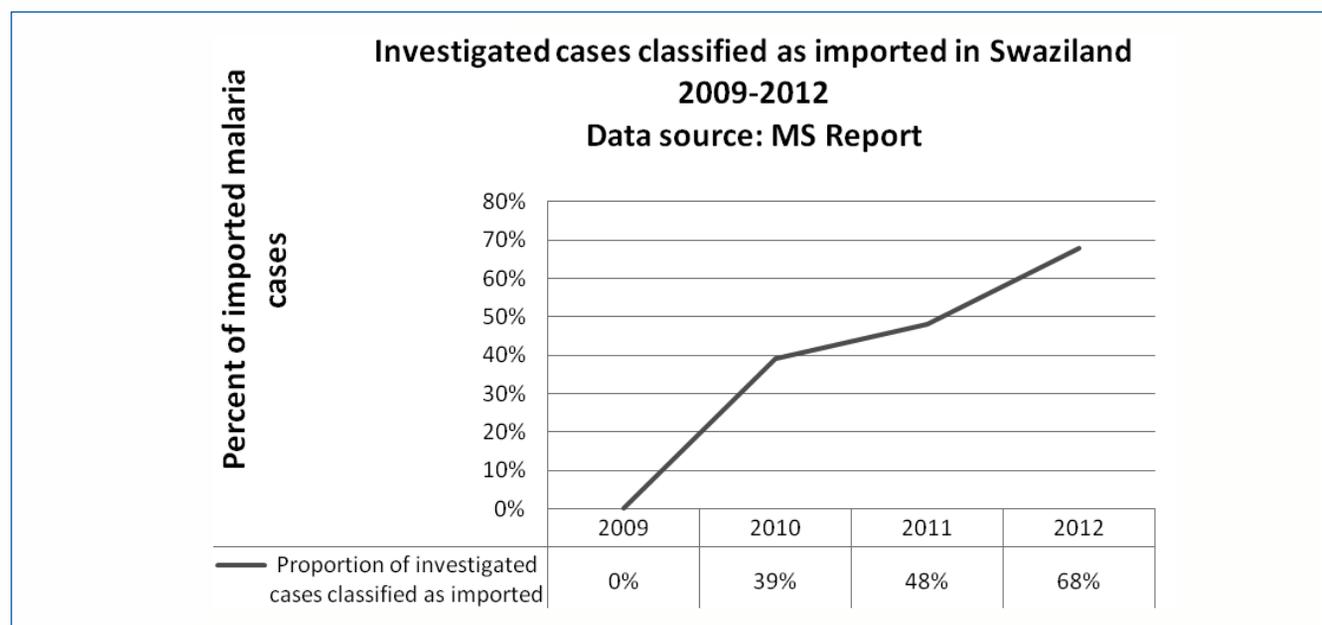


Figure 12: Trend in Imported Malaria Cases in Swaziland 2009-2012



In terms of confirming malaria cases, Figure 13 shows the progressive increase in capacity to confirm malaria, a dimension that is critical for any country embarking on malaria elimination. At this rate of increase one would expect that this category of MS will have 100% capability for case confirmation by or before 2015.



Figure 13; Malaria Case Confirmation in MS

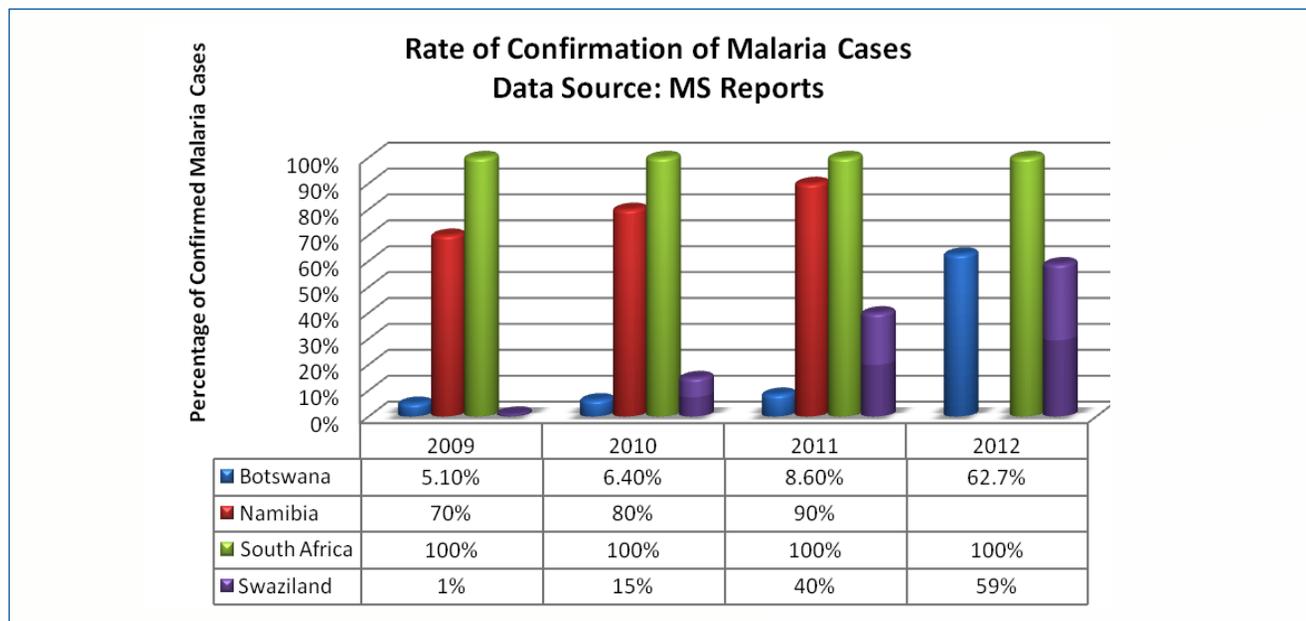
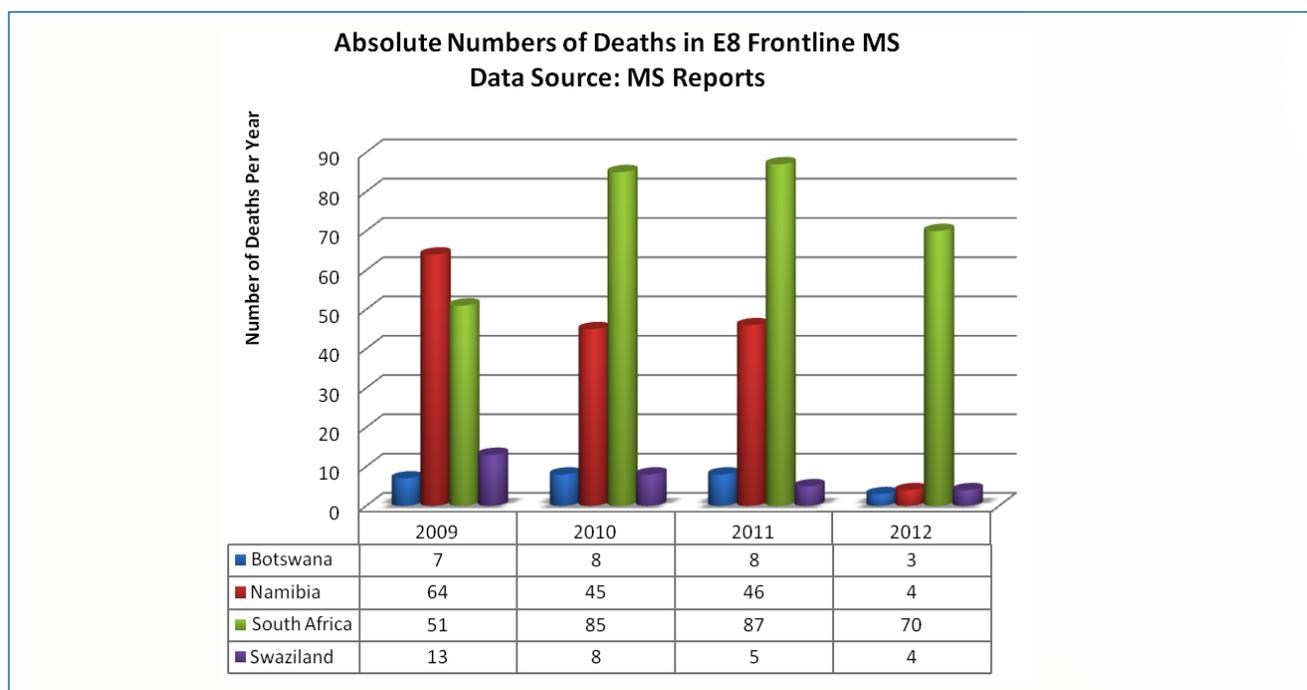


Figure 14: Number of Malaria Deaths in Frontline E8 MS



Mortality in the four frontline MS is relatively low compared to MS in the control phase (Figure 14). As of 2012, three MS, namely Botswana, Namibia and Swaziland, have deaths in single digits implying malaria is no longer a major cause of disease in the national context. Achieving the near zero target by 2015 is a real possibility for Botswana, Namibia and Swaziland. However, RSA has sustained a significantly higher number of deaths over the 2009-2012 period compared to MS in its category. These higher deaths could be related to migrants entering the country with limited access to health care services due to social, economic or geographic barriers or could be related to health seeking behaviours (late presentation or unwillingness to go to formal health facilities) by malaria infected individuals. It could also be related to poor index of suspicion at health facilities or late presentation at health facilities. Whatever the actual cause there is an urgent need to generate evidence that will enable the MS to formulate effective actions to curb the deaths so that it can achieve its elimination goal.



Highlights on Impact Indicators in the 4 E8 Frontline States

Achievements

- Decreased number of deaths due to malaria recorded in 2012, and for ¾ these are single digit numbers; the number of deaths in Botswana, Namibia and Swaziland have such low levels of deaths that achieving near zero deaths by 2015 is a real possibility
- Increased diagnostic capacity across all four MS is evident from this report
- Namibia has dramatically reduced malaria incidence in the period 2009-2012

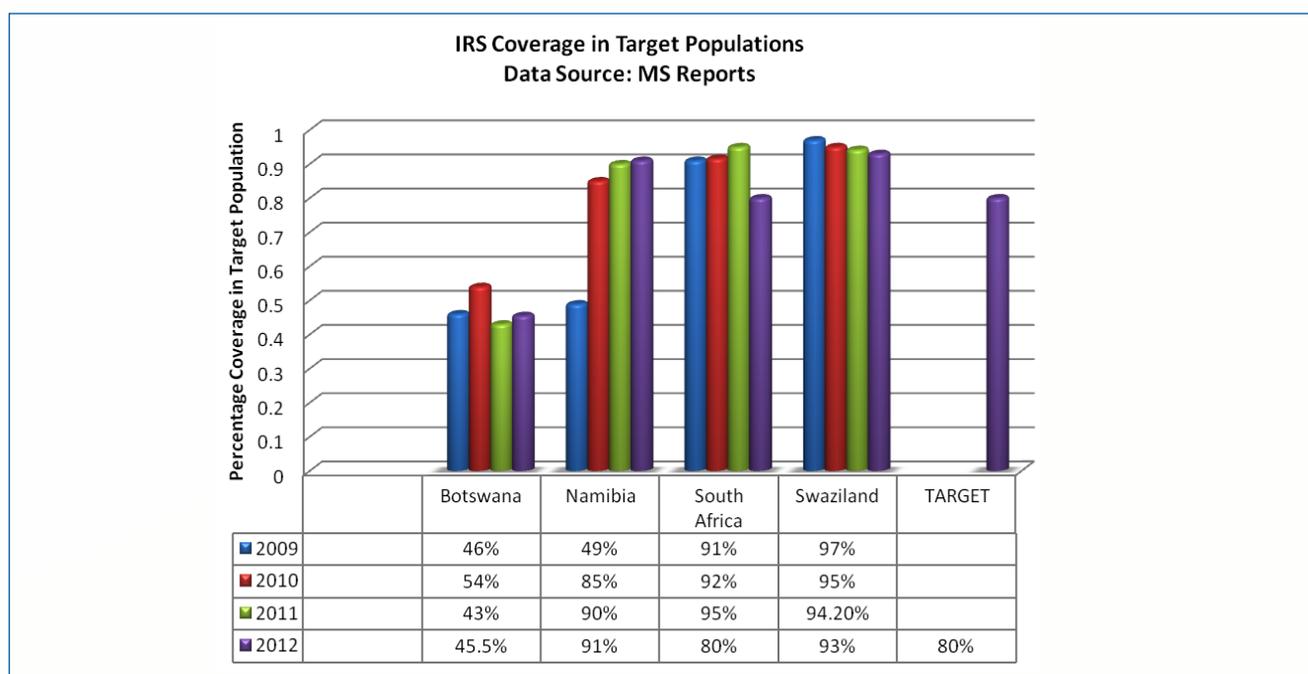
Concerns

- Reducing residue malaria incidence is proving difficult for MS that had achieved incidence of less than one by 2009 – a level of transmission is persisting in spite of consistent implementation of interventions
- Data is suggestive of an upward trend in malaria incidence for Swaziland but this is probably attributable to imported cases
- Late presentation of patients at health facilities (contributing to mortality)
- Low index of suspicion for malaria by health facility workers
- High proportions of imported cases (porous borders)
- Delayed release of funds

3.2.2.2 Integrated Vector Control in the four E8 frontline MS

This group of MS implement IRS and LLINs activities as key vector control interventions (except for South Africa which only focuses on IRS). Figure 15 shows very high performance (greater than 80%) for Namibia, South Africa and Swaziland. A challenge related to this indicator cited by one MS is untimely release of funds that affects the timing of IRS activities. It is unclear from the reports why one MS is having IRS coverage rates that are substantially lower than the other three.

Figure 15: IRS Coverage in the Four Frontline E8 MS

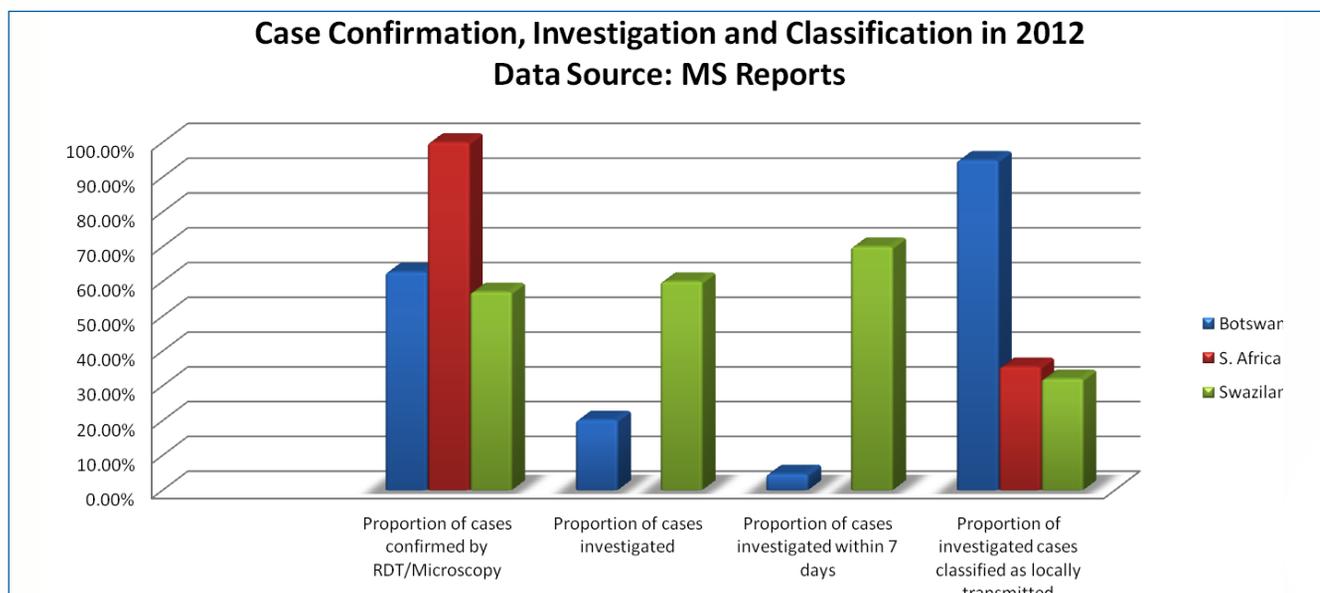


For MS that reported data on LLINs, the coverage rates were 52.8% and 78% for Botswana and Swaziland, respectively. Use in children under the age of five was reported as 50.6% and 21.8% for Botswana and Swaziland, respectively. Botswana reported a 42.4% use rate among pregnant women. These utilization rates are low and as noted above need to be investigated so that root causes can be identified and acted upon.



In addition to the routine indicators MS moving into pre-elimination conduct case confirmation and investigate cases to determine whether they are locally transmitted or imported. In this respect they report on the indicators reflected in Figure 16. Of interest is that for Botswana, the majority of cases are locally transmitted, whereas for South Africa and Swaziland only about a third of the cases are actually locally transmitted. This suggests that population movement across borders plays a greater role in malaria transmission for South Africa and Swaziland than Botswana. The implication for program management is that South Africa and Swaziland need to accelerate cross border malaria control if malaria is to be eliminated.

Figure 16: Case Confirmation and Investigation in Low Malaria incidence MS for 2012



Highlights on the 4 frontline E8 MS

Achievements:

- Botswana, Swaziland and South Africa are making steady progress in re-orienting their programs to strengthen surveillance and are conducting case investigation to clearly differentiate between locally transmitted and imported malaria
- The MS in this group have strengthened their capacity to confirm malaria cases to the extent that 57-100% of cases are confirmed with a diagnostic test
- Namibia is rapidly reducing both her malaria incidence and mortality and is expected to be re-orienting her program for elimination

Concerns:

- Not all cases are being investigated, and only Botswana and Swaziland are actually reporting on the extent of investigation of cases
- Financial limitations prevented training of human resource to support malaria control and elimination activities
- Untimely arrival of commodities limited some activities

3.2.3 Progress in Malaria Free MS

SADC has three MS that currently do not have local transmission of malaria, namely Lesotho, Mauritius, and Seychelles. Nevertheless they have to have systems in place to ensure that malaria is neither introduced nor re-established as appropriate. The key interventions are detailed in annex 7.4.

Consequently these MS track the following core indicators:

- Number of people receiving training according to the human resource plan;
- Number of imported malaria cases; and
- Number of deaths due to malaria.



3.2.3.1 Number of people receiving training according to the human resource plan

In line with the MS' human resource plan Seychelles trained two staff specifically for malaria in 2012. Additionally there has been on-going workshops and meetings held by the international partners (WHO, SADC, IOC). The other two MS in this category did not report on this indicator for 2012.

3.2.3.2 Number of imported malaria cases

Two MS, Mauritius (Figure 17) and Seychelles (Figure 18) reported on this indicator in 2012.

Figure 17: Number of Imported Cases in Mauritius

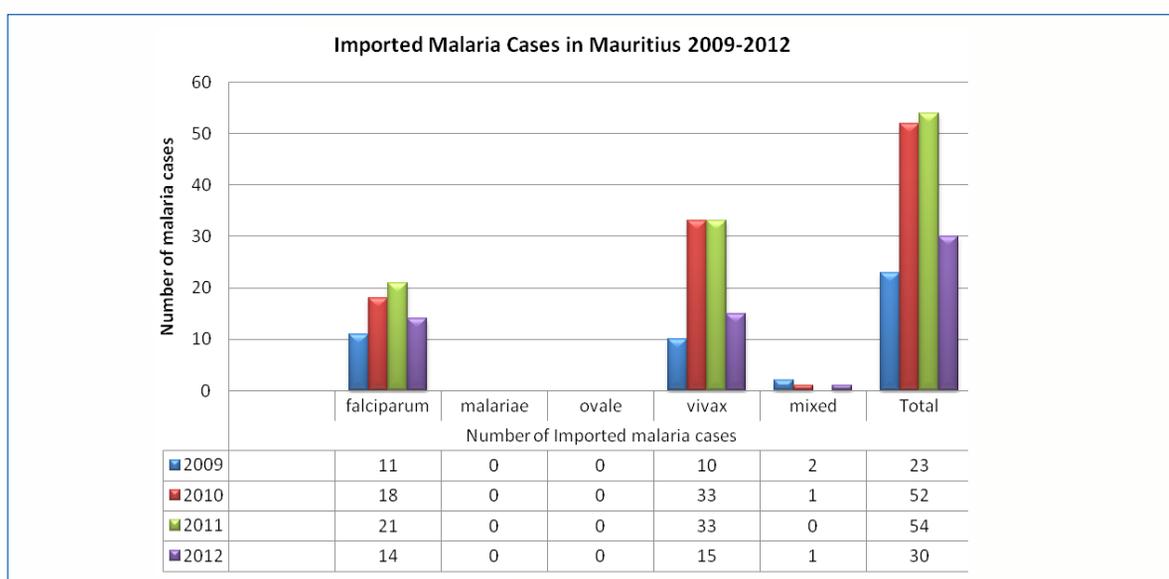
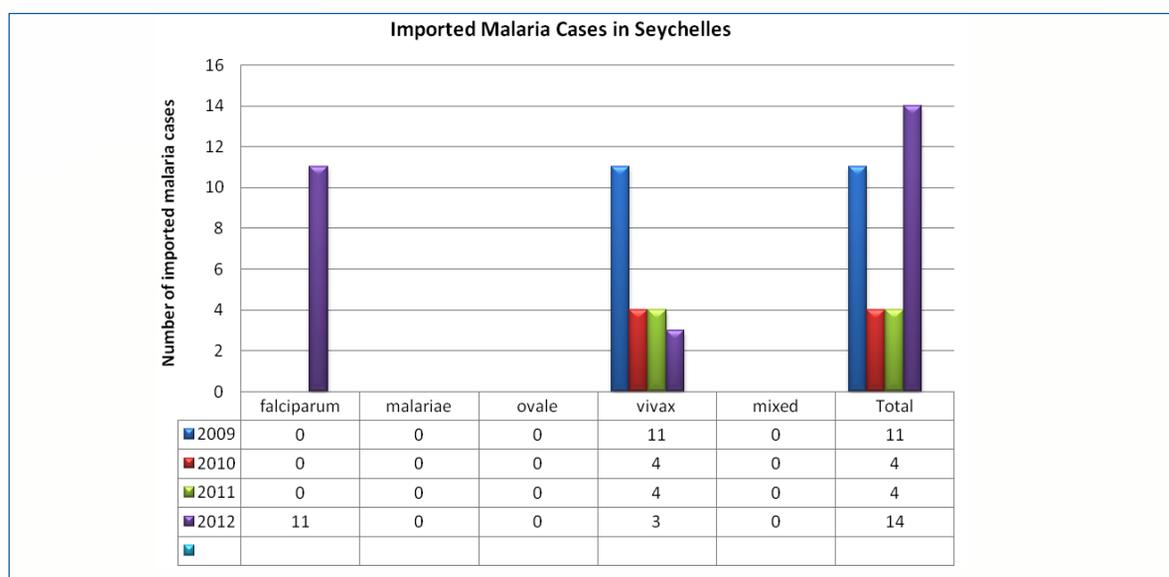


Figure 17 shows a declining burden of imported case into Mauritius in 2012 over 2011. In 2012, 46.7% of imported cases were *P. falciparum*; 50% were *P. vivax* and the rest were mixed infections. The country also reported three *P. vivax* cases that were introduced into Mauritius by a visitor who came with *P. vivax* malaria. All cases except one were successfully treated. Radical treatment was provided for *P. vivax* accompanied by a 12 month rigorous follow up of the patients. *P. falciparum* cases were treated and followed up for six months. Mauritius also gives prophylaxis to all her residents travelling to malaria affected areas.

Seychelles on the other hand had a total of 14 imported cases in 2012 compared to 4 for each of the two preceding years, reflecting a marked increase in imported cases. Eleven out of these cases were *P. falciparum* (3 were *P. vivax*). All the cases were successfully treated and there were no reported deaths.

Figure 18: Imported Malaria Cases in Seychelles





3.2.3.3 Number of deaths due to malaria

Mauritius reported one malaria death. The circumstances under which this death occurred are not given in the report.

Overall Mauritius and Seychelles are competently addressing the prevention of re-entry of malaria and with continued vigilance the States are likely to maintain their status quo. Lesotho did not report on these indicators in 2012 but the country does have a disease surveillance system in place that yields weekly data and has diagnostic capacity to diagnose malaria cases and it is important that the MS is supported to commence monitoring, detecting and appropriately managing imported malaria cases, particularly in light of frequent population movement between Lesotho and malaria endemic areas beyond its borders.

3.3 Emerging Good Practices

Good practices have been reported by several MS. Botswana has commenced using mobile phones for immediate notification of malaria cases, including mapping malaria cases at household level and uploading these onto Google earth. This helps to geographically pinpoint malaria cases and facilitates identification of malaria transmission foci.

Tanzania on the other hand has innovatively used mobile technology, SMS messaging and electronic mapping technology to track weekly stock levels at public health facilities in a bid to increase access to essential malaria medicines, eliminate stock-outs and reduce the number of malaria deaths. In the same vein Zimbabwe has instituted the Zimbabwe Information Push (ZIP) system to ensure there are no stock-outs of malaria commodities by frequently visiting health facilities and topping up supplies.

Swaziland has stepped up vector surveillance using pyrethrum spray catches to monitor vector resistance to currently used insecticides and identification of changes in vector populations. This is a good practice as continued deployment of IRS and LLINs is bound to cause adaptations in both the vector response to insecticides (development of resistance) and the profile of vector population.

Namibia was able to mobilize local resources to cover LLINs, regional transport, malaria equipment and surveillance system for the next three years. This is a good practice as local funding with no external encumbrances permits the smooth implementation of activities. Similarly the DRC led a successful advocacy campaign for increased resources for malaria control. The proactivity of the program is a good practice as it demonstrates ownership.

3.4 SADC Regional Response to the Malaria Burden

SADC provides an excellent platform for interaction between implementers and researchers, and fosters a learning environment through coordination of program reviews, meetings and workshops that promote peer learning and sharing of good practices. It has also provided a strategic direction and minimum standards for malaria for MS.

The success of SUFI and the universal coverage approaches have raised new challenges for the SADC region. The epidemiological landscape has changed drastically in most MS with some MS having widely ranging epidemiological profiles where “one shoe does not fit all” in terms of intervention deployment – a situation that requires re-thinking in terms of programming. Some MS have reduced malaria transmission significantly and are re-orienting their programs for malaria elimination. These countries are moving into uncharted waters with many unknowns. The SADC region has to support these countries to generate required evidence as well as provide the required technical support to meet the challenges of a malaria elimination agenda. To this end the SADC region is addressing as of primary importance:

- Updating guidance documents to align them with the current needs of malaria control and elimination as evidenced by the initiation of the mid-term pre-review of the SADC Malaria Strategic Framework in 2012 which is a prelude to the full review in 2014.
- Timely and cost-effective common procurement of essential commodities such as DDT, anti-malaria drugs and diagnostics in order to put an end to stock-outs and untimely delivery of requisites
- Establishing regional local funding to ensure activities are not unnecessarily interrupted
- Increasing effectiveness of cross-border malaria control
- Advocacy for continued investment into malaria control and elimination in the SADC region exemplified by the organization of the SADC malaria day; In 2012 SADC commemorated the SADC malaria day on 11 November in Manhiça, Mozambique at which the officiating Minister of Health from Mozambique urged MS to promote the local production of DDT and anti-malaria drugs, find innovative ways of raising local financing for malaria control/elimination and to set up National Malaria Elimination Commissions. The theme for the 2012 SADC Malaria Day was “For a SADC Region Free of Malaria: know the symptoms of malaria take the test and undergo treatment” - an appropriate theme for a region determined to eliminate malaria.



Other key activities were: the distribution of the bed nets; a visit to the modern Malaria Research Centre; the speech of the SADC Chairperson on the status of malaria in the SADC region in terms of control and elimination; the WHO speech on the development of a new policy that embraces the needs for elimination; the State of malaria elimination in Swaziland as a neighbouring country. Of note was the demonstration of the involvement of the private sector in the malaria control and health system strengthening in the district with the construction of a health facility where all staff are fully paid for by the company. The company additionally has a medical doctor as in charge who is also a malaria focal point. The company provides malaria medicines and commodities. The event was attended by 150 thousand people, with a bus load of delegates coming across from Swaziland. It was a successful event.

- Initiating the set-up of regional centres of excellence for quality assurance and human resource, including specialized laboratories for the improved performance of MS malaria control and elimination programs

To enhance malaria elimination activities for the E8 MS, SADC has created a coordinator position for which the recruitment process has commenced.

SADC has recognized the need for owned flexible financing to sustain gains and accelerate malaria elimination. To this end SADC is developing the SADC sustainable financial framework. This is an on-going process that will involve the ministries of finance and ministries of health.

Both the 2010 and 2011 reports highlighted constraints in procurement of commodities. SADC has responded to this by exploring the feasibility of local production of these commodities. This is a work in progress for which a consultant has been selected to conduct a feasibility study. Local production of DDT is still being explored. The SADC pool procurement strategy has been approved and plans are in place to establish an information system among MS. SADC region has recognized the critical need for strong Health Information Management Systems in MS. To this end a capacity building agenda has been initiated to train MS on the SADC Policy on Surveillance and Database. The surveillance policy will be comprehensive in that it will cover malaria, TB, HIV/AIDS, STI, Child & Adolescent health issues. The intent is to harmonise and strengthen regional disease surveillance. The actual activities are scheduled for 2013.

SADC promotes collaboration and partnerships. However in line with the Paris Declaration (2005) it is seeking to put in place a system for partnership management that will ensure that SADC takes leadership and control of activities and that it is the SADC agenda that is operationalized. It is very important for SADC to align partners to the SADC agenda to ensure effective use of resources and attainment of SADC goals for malaria.

4.0 Status of Cross Border Initiatives in the SADC Region

Mosquito vectors that transmit malaria, and human beings that harbour malaria that can be transmitted, continuously move across borders from country to country. This necessitates the need for a strategic approach to cross border control of malaria among SADC MS, particularly across borders that demarcate high malaria transmission areas and those that have very low prevalence and have opportunity to eliminate malaria. Several cross border initiatives are evident in the SADC region. Notable among these are the Trans-Kunene cross border malaria initiative (TKMI) between Angola and Namibia, which was actively distributing LLINs in 2012 to curb cross border malaria. The two countries also held a forward planning meeting to ensure that the TKMI continues to have impact. The Trans Zambezi Malaria initiative, comprising Angola, Botswana, Namibia, Zambia and Zimbabwe, has slowed down because of limited financing. The MOZIZA malaria initiative comprising Mozambique, Zimbabwe and South Africa is still on the agenda and efforts are being made to strengthen this initiative, which is modelled around the successful Lubombo Spatial Development initiative (LSDI). The critical issue is the need to acquire adequate financing that will operationalize this activity. Although a proposal was developed for the GFATM this was not successful and efforts are still being made to source for funding.

In addition to the SADC initiatives, individual MS have proactively addressed cross border malaria control. Zambia and Zimbabwe launched a more focused Zambia –Zimbabwe (ZAM-ZIM) cross border malaria initiative in 2012. At a high level meeting held in Harare on 26th November, 2012, the feasibility and opportunity for the two countries to engage and coordinate on cross border malaria control and elimination interventions was explored. The need to develop action plans detailing requisite cross border activities with clear roles for government and partners was highlighted and it is expected that this will be done in 2013. The financing for this initiative would come from existing funding from the Global Fund to Zambia and Zimbabwe. Individual country efforts to address cross border malaria are also evident. For instance Swaziland rented 12 billboards at strategic locations near border posts and malaria at-risk areas to communicate the need for travellers to utilize prevention methods when travelling to areas exposing one to a high risk for malaria infection.



5.0 Gaps and Challenges

This section will discuss general gaps and then go on to elaborate challenges for each category of countries as laid out in this report and at regional level.

There are challenges that are common to all SADC MS and these comprise those related to: implementing effective cross-border programs; effective procurement systems; consistent and timely financing to achieve and sustain universal coverage; adequate numbers of appropriately skilled manpower; updated and standardized reporting format taking into account updated indicators that speak to a region with an elimination goal.

Beyond these there are category specific challenges which will be elaborated in the following sub-sections.

5.1 Gaps and Challenges by MS category

5.1.1 MS in Control/Consolidating Phase of the Elimination Pathway

A review of the MS reports raise concern over shortfalls in universal coverage targets, and lower than expected rates of utilization of interventions particularly LLINs and IPTp. Clearly MS are facing challenges that must be addressed particularly as the region approaches 2015, the year in which critical SADC, global and MDG malaria related targets are expected to be attained.

Program gaps identified in MS reports included:

- Weak quality assurance systems that weaken the reliability of data
- Challenges in standardizing the definition of a malaria case along the continuum of health care delivery such that accurate data is fed into the HMIS
- Lack of updated malaria distribution maps for stratification and effective targeting of interventions
- Inconsistent funding that results in loss in gains by otherwise well performing programs

5.1.2 MS in or orienting programs for pre-elimination

MS in this category have made good progress. However they still reported program challenges as follows:

- Human Resource: limited knowledge and skills mix that limit program ability to fully execute plans (e.g. entomological surveillance); low index of suspicion at health facilities that give rise to malaria deaths
- Inadequate or late release of funds from the Global Fund and national governments that prevent or delay availability of critical inputs
- Surveillance systems that are inadequate to meet the data requirements of an elimination agenda
- Challenges with cross border control of malaria evidenced by large proportions of imported malaria in low malaria incidence MS due to porous borders
- Beneficiary behaviour: late presentation at health care facility
- Delays in procurement including logistical challenges and expense of obtaining DDT from one source in India

5.1.3 MS with no local malaria transmission

This category identified the following challenges

- There is a need for a standardized reporting format with clarity on indicators
- MS Lesotho requires support to start activities to prevent entry of malaria, including commodity support

5.2. Policy Gaps

There are policy gaps across the MS regardless of category and these are:

- **Policy guidance to govern cross border activities in terms of initiating, implementing, monitoring and evaluating, financing, and coordination:**
Porous borders that result in high proportions of imported cases in low malaria prevalence countries have been cited as a challenge. This requires a policy document that thinks through the approach to financing, scope and coordination. Currently there appear to be several initiatives and the extent to which these initiatives interact and share terms of reference is not clear from MS reports.
- **Policy guidance to govern identification and commissioning focused intervention-linked research to address malaria elimination:** It is acknowledged that MS are conducting research to answer specific needs; however it is not clear to what extent this is governed by a clear policy that supports the commissioning and financing of research based on regionally identified information/evidence gaps that will for instance assist in determining cost-effective intervention packages (currently available or additional) for both control and elimination countries. Given the persistence of residual transmission in elimination countries and reversal of gains in control countries, such research would be invaluable.



- [Policy to regulate the entry of Artesunate mono-therapies](#) through the private sector that pose a threat to the continued efficacy of ACTs and enhanced quality control to prevent entry of counterfeit drugs in MS.

5.3 Gaps and Challenges at Regional Level

Consistent, flexible and adequate financing to meet the requisites of a region that has set an elimination goal and limited personnel at regional level is still a challenge. Aligning partners to the SADC agenda was cited as a major challenge at this level.

5.4 Challenges in Malaria Control

There are broader challenges in malaria control that affect the SADC region. These primarily relate to concerns about the ability of the current set of interventions to achieve elimination and definitive approaches to achieving elimination and sustaining a malaria free status. All these issues require research to generate an evidence base for effective decision making as well as the design of new and effective tools. It is just a matter of time before parasite resistance to SP reduces the effectiveness of this useful single dose drug that prevents malaria during pregnancy and a new drug that is as easy to administer is required. Similarly the reported resistance reported 2.5 to currently used insecticides puts a time limit on the usefulness of current vector control approaches (both IRS and LLINs) that have been so effective in reducing malaria transmission. New drugs and insecticides will be required in the near future to ensure elimination happens. A vaccine would be of great benefit in this process but as of now this is research in progress.

Climatic and geographic factors, population movements and behaviours of communities at which interventions are targeted can impact negatively on malaria elimination efforts. It is important to understand these factors so that programs can devise relevant strategies to combat malaria.

Further there is the potential threat of reduced global and domestic financing for malaria control and elimination, particularly if there is a perception that it is no longer a problem of public health significance. A premature withdrawal of funding leading to progressive reduction in coverage of malaria control intervention would result in a resurgence of malaria as has been observed post global malaria eradication program.

Lastly, elimination is a new process for all SADC MS and as such there is much to be learned. There is a requirement for research generated information to guide the process. This calls for strengthened research capacity. Elimination will call for additional tools in the form of treatments, including treatments that remove dormant liver forms of the parasite (as is the case in *P. vivax* and *P. ovale*) and gametocytes (transmissible parasite forms going from man to mosquitoes). This implies that affected MS may have to explore the use of drugs such as low dose Primaquine¹⁸ and others in the pipeline. There are potential adverse events associated with these and SADC must be ready with evidence to be able to make sound decisions. Furthermore the WHO has recommended the T3 (Test Treat Track)¹⁹. Given the current state of health systems, this poses a tremendous challenge, particularly for countries with large areas and big populations or small populations that are widely spread out over a large area. The requirement to test (confirm) every suspected malaria case, treat every case and have a strong surveillance system to ensure all cases are captured and documented, although essential for effective control and elimination, is expected to be a challenge for the majority of MS. There will be a need for regional coordination for this ambitious strategy to become a reality

6.0 Recommendations

This section will elaborate recommendations by MS category based on the gaps and challenges cited in section 5.

6.1 Recommendations for MS in Control/Consolidating Phase of the Elimination Pathway

Based on the identified challenges the following recommendations are made:

- MS should utilize national RBM partnerships to keep their epidemiological profiles updated
- MS reporting difficulty in standardizing case definitions along the continuum of healthcare could approach their country level RBM partners or WHO to support them in producing standardized job aides& help raise funds for capacitating health personnel in using and monitoring the use of these
- MS could consider the setting aside of contingency funds to meet unexpected shortfalls from regular sources
- MS should use local RBM partnerships to develop roadmaps for rapidly scaling up diagnostic capacity and quality assurance systems and utilize the centres of excellence being set up by SADC to support these activities

18 http://www.who.int/malaria/pq_updated_policy_recommendation_en_102012.pdf

19 http://www.who.int/malaria/publications/atoz/test_treat_track_brochure.pdf



6.2 Recommendations for MS in or orienting programs for pre-elimination

- Country level partners should be approached to assist through capacitating and secondment of staff to meet shortfalls in skilled human resource to address the needs of the elimination agenda

6.3 Recommendations for MS with no local malaria transmission

- There is an urgent need for Lesotho to put a surveillance and malaria case management system in place to address imported malaria

6.4 Recommendations for the Regional level

As a matter of priority and urgency it is recommended that:

- the SADC malaria reporting format and indicators be revised in order to meet the updated requirements of an elimination agenda
- surveillance, monitoring and evaluation be strengthened
- A roadmap for sustaining high intervention coverage as a pre-requisite for elimination be developed for SADC
- SADC should support Lesotho to set up a malaria surveillance and case management system
- SADC should develop a regional policy and roadmap around cross border malaria control to define scope, financing & coordination mechanism
- SADC should develop a competency framework for malaria elimination that will guide MS to develop training curricula to ensure that all required knowledge and skills for efficient implementation of malaria control and elimination activities are captured. This will avoid ad hoc training and help forward planning;
- SADC should accelerate the development of the regional funding mechanism that it is already working on;
- SADC should support MS to strengthen supply management capability
- Recruit more personnel at regional level to support an accelerated agenda towards elimination



7.0 Annexes

7.1 Annex 1: Glossary of Common Terms and Definitions

Control: Reduction of disease incidence, prevalence, morbidity or mortality to a locally acceptable level as a result of deliberate efforts; continued intervention measures are required to maintain the reduction.

Elimination: Reduction of locally transmitted infection caused by plasmodia to zero in a defined geographical area as a result of deliberate efforts

Imported malaria - A case of malaria that is brought into an area by someone who has become infected somewhere else. The person could be either a tourist or immigrant.

Local case: A malaria infection acquired in the locality where the infected person normally resides

Malaria-free certification: Process by which WHO certifies an entire country malaria-free following at least three consecutive years of no local transmission of any of the four human malaria species. Countries can still experience imported cases, as long as no onward transmission occurs due to intense surveillance and effective control.

Pre-elimination: Malaria control program re-orientation period between the sustained control and elimination stages where emphasis on surveillance, reporting and information systems increases.

Prevention of reintroduction: The period following elimination once surveillance shows a reduction to zero of all locally acquired cases (this does not include imported cases). Countries must be in the stage at least three years before eligible for WHO malaria-free certification.

Sustained control: Once universal coverage with appropriate malaria interventions is achieved, sustained control is the period during which malaria control measures are stabilized and universal coverage is maintained by continued strengthening of health systems, until local field research suggests that coverage can gradually be targeted to high risk areas and seasons only, without risk of a generalized resurgence.

Universal coverage: 100% of the populations at risk are covered by appropriate malaria interventions. See definition for coverage above.

7.2 Annex 3: Global Declarations Commitments and Targets

SADC is a part of the Roll Back Malaria (RBM) Partnership and as such is committed to the following targets:

- Achieve universal coverage for all populations at risk with locally appropriate interventions for prevention and case management by 2010 and sustain universal coverage until local field research suggests that coverage can gradually be targeted to high risk areas and seasons only, without risk of a generalized resurgence;
- Reduce global malaria cases from 2000 levels by 50% in 2010 and by 75% in 2015;
- Reduce global malaria deaths from 2000 levels by 50% in 2010 and to near zero preventable deaths in 2015;

Other global and continental commitments

Abuja Declaration (2000): attainment of 60% population coverage with interventions known to protect against or cure malaria ²⁰ and commit 15% of national budgets to health by 2005.

Millennium Development Goals (MDGs)(2000): goal 6, target 6c - halt and reverse malaria incidence by 2015 ²¹ . African Heads of State (2006): call for acceleration towards universal access to HIV, TB, and malaria services ²² by 2010.

20 The Abuja Declaration and Plan of Action, 2003 available at http://whqilbdoc.who.int/hq/2003/WHO_CDS_RBM_2003.46.pdf
 21 <http://www.un.org/millennium/declaration/ares552e.pdf>
 22 <http://www.un.org/millennium/declaration/ares552e.pdf>



UN Secretary General (2008) call for universal coverage by 2010

SADC's commitments in relation to RBM Global Malaria Action Plan (2013 ²³ re-set targets): reduction of malaria deaths to near zero by 2015; reduction of global malaria cases by 75% over the 2000 values by 2015; attainment of universal access to case management by 2015; 100% access and utilization of preventive measures for all populations at risk with locally appropriate interventions by 2013 and to sustain these by 2015 and beyond; accelerate development of surveillance systems by 2015.

SADC Specific Commitments

E8²⁴ Ministerial resolution (2009): In November 2011, the SADC Elimination 8 (E8) Ministers made important decisions to support malaria control and elimination ²⁵ that included:

- Establishment of an E8 Secretariat in Namibia
- Formation of an E8 technical committee to be accountable for following up recommendations, which should meet twice a year
- Call for the four E8 front line States to set up national committees for malaria elimination and adhere to WHO certification requirements
- Call for Member States to institutionalize cross border activities to achieve and sustain malaria elimination at state level
- Establishment of a SADC Centre of Excellence to enable compliance with the Stockholm Convention and to ensure quality IRS. The meeting further recognized the importance of research and local production of malaria commodities
- Endorsement of the use of DDT and consideration of the local production of DDT
- Considered the necessity of local mobilization of funding to support and sustain malaria control in the SADC region.

The SADC Malaria Strategic Framework (2007 to 2015) specifically set out the following targets:

- **By 2010:**
 - Malaria morbidity & mortality halved over 2000 levels
 - Improve health systems such that more than 90% of people will have access to effective treatment and prevention services for malaria
- **By 2012:**
 - Effective regional malaria information system established and operational in all Member States;
 - At least five SADC countries should be implementing effective malaria control and elimination strategies
- **By 2015:**
 - Six Member States eliminate malaria in SADC;
 - Malaria policies harmonized and treatment guidelines and protocols standardized for the provision of malaria control services
 - Malaria morbidity and mortality reduced by 75% over 2000 levels

The SADC Malaria Elimination Framework (2007) defined the switch- over points from one category to another along the pathway to elimination (Fig. 20) as follows:

- <5 cases/1000 to transition to pre-elimination
- <1/case/1000 to transition to elimination
- Three consecutive years without local transmission qualifies a country for certification by WHO for elimination of malaria

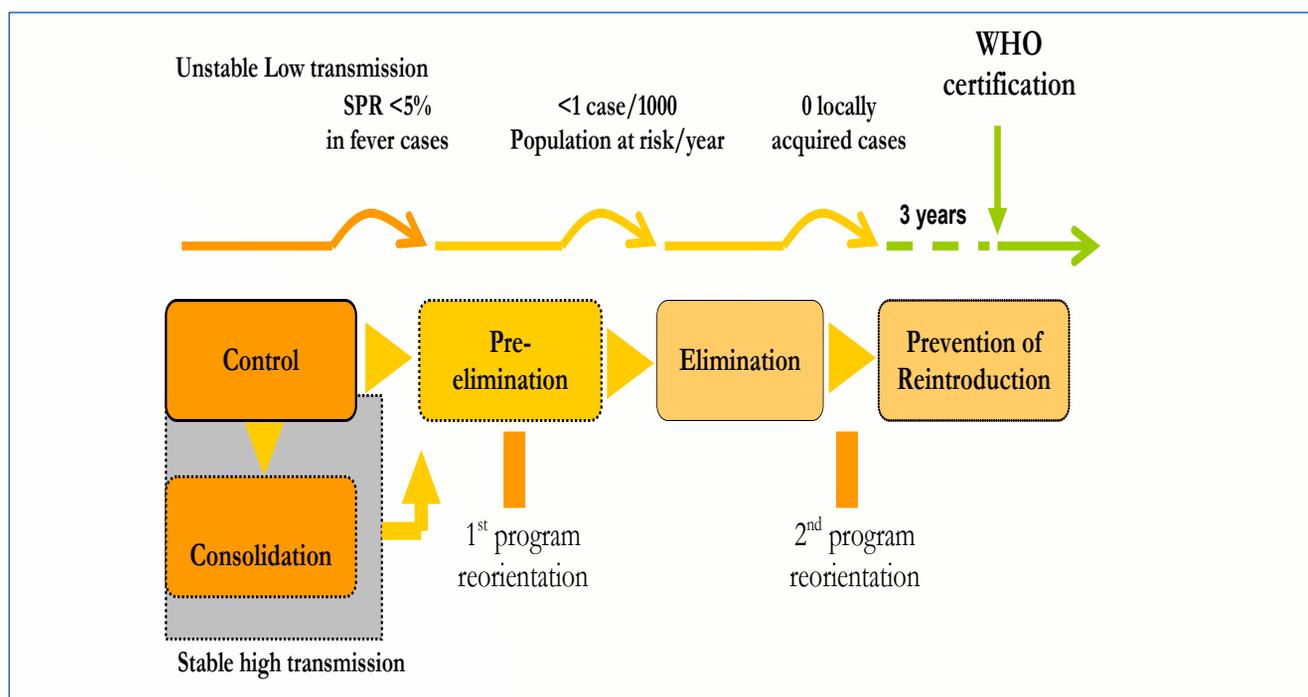
23 <http://www.rollbackmalaria.org/gmap/gmap2011update.pdf>

24 E8 is Malaria Elimination 8

25 Final Record for E8, 4 November 2011



Figure 19: Pathway to Malaria Elimination



7.3 Annex 4: Global Partnerships and Initiatives in Support of Malaria Control

By far the largest global partnership that SADC has linked into is the RBM²⁶ which is composed of Multilateral and bilateral partners, non-governmental and governmental organizations, private and public sector organizations, Foundations and so on. At a regional level RBM has regional sub networks to which various SADC MS belong. Other partners such as the GFATM, President's Malaria Initiative (PMI), World Bank, African Development Bank, World Health Organization, UNICEF, Clinton Health Access Initiative (CHI), Bill and Melinda Gates Foundation, JC Flowers Foundation, Novartis and various international NGOs support and work with individual SADC MS.

At continental level, the African Leaders Malaria Alliance (ALMA) formed in 2009²⁷ is a high level initiative striving to end malaria deaths.

7.4 Interventions in MS with Zero Local Transmission of Malaria

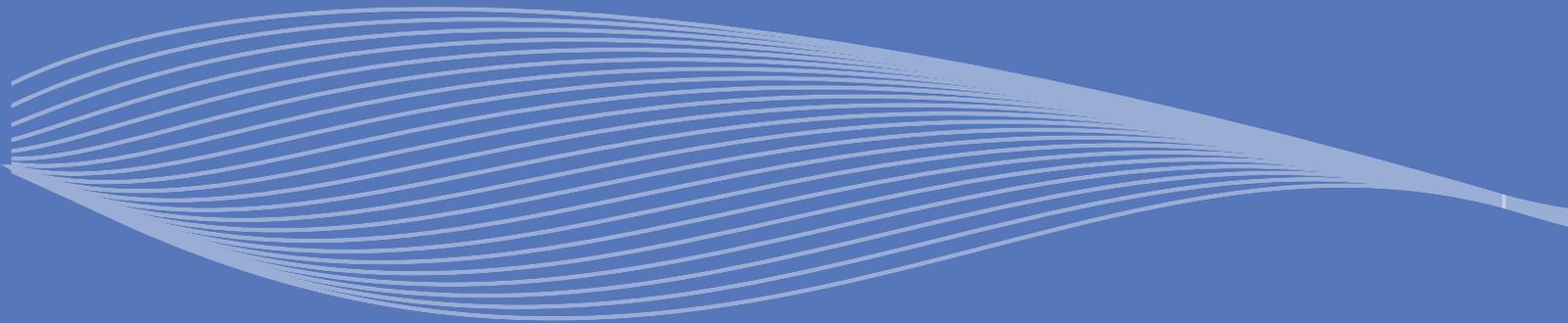
The main interventions for this category of countries include:

- Distribution of prophylaxis to all travellers going to endemic malaria areas
- Weekly spraying and control of the immediate perimeter of the points of entries (port and airport)
- Spraying and disinfection of all incoming planes and shipping vessels arriving from international grounds
- Regular surveys around the ports of entries for identification of breeding grounds and presence and type of vectors around these areas
- Weekly spraying of immediate perimeters of ports of entry, spraying of in-coming planes, regular surveys for breeding sites and identification of vectors
- Maintenance of traveller's health facilities that provide information and prophylaxis
- Diagnosis and treatment of imported cases, including radical treatment for malaria
- Requiring people leaving the country to check health requirements one month prior to departure on a given contact number
- Obligating people who have travelled to malaria endemic areas with signs and symptoms for malaria to inform their doctors of their trip up to one year after their return
- Developing human resource plans to support capacity building for malaria activities

26 <http://www.rollbackmalaria.org/>

27 <http://www.alma2015.org/>





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