



**Tracking Progress in Scaling-Up
Diagnosis and Treatment for Malaria**

**A Compilation of Data on African Malaria Endemic Countries'
Estimates of their Commodity Needs and Funding Available**

Carried out on behalf of the Roll Back Malaria (RBM) Procurement
and Supply Chain Working Group (PSMWG) and
Medicines for Malaria Venture (MMV)

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Acronyms

ACT	Artemisinin-Based Combination Therapy
AMFm	Affordable Medicines Facility, malaria
GFATM	The Global Fund to Fight HIV/AIDS, TB and Malaria
MIS	Malaria Indicator Survey
MMV	Medicines for Malaria Venture
PSM	Procurement and Supply Management (plan)
PSMWG	RBM Procurement and Supply Chain Management Working Group
RBM	Roll Back Malaria Partnership
RDT	Rapid Diagnostic Test
SP	Sulphadoxine-Pyrimethamine
SRN	RBM sub-regional network
SSA	Sub-Saharan Africa
TORs	Terms of Reference
WHO	World Health Organization

Objective

The RBM Partnership targets recommend universal coverage of ACTs and RDTs for all malaria endemic countries by 2010. However, the recent World Malaria Report indicated that despite incredible donor commitments for malaria in recent years which reached 1.7 billion in 2009, as well as increases in procurement of Artemisinin-based Combination Therapies (ACTs), only 15% of children under five years from a set of countries reviewed in 2007-8 received an ACT when they had fever.

There is a paucity of information on actual ACT and RDT requirements in countries. This is exacerbated by poor information management systems in countries to track the use of these essential malaria commodities as well as gaps in definition and understanding of the measure of 'universal' coverage for RDTs / ACTs (as opposed to LLINs).

In order to understand the needs of ACTs as defined by the countries, the Roll Back Malaria Partnership Procurement and Supply Management Working Group (PSMWG) and Medicines for Malaria Venture (MMV) commissioned a consultancy to provide an updated overview of the current status of funding available to countries in Africa for ACT and RDT procurement, as well as current national estimates of commodities required. It brings together information to address the following questions:

- **What have countries indicated as their needs for ACTs and RDTs for 2009 – 2011, as defined in recent grant proposals and other national documents?**
- **How much funding does each country have available to procure the amounts indicated?**
- **What targets have been set by each country and how these targets are estimated?**
- **How does each country measure the amount required and how does this relate to the definition of 'universal coverage'?**

This report limits its focus to a compilation and review of available data based on national documentation. It is not intended to provide a national or global forecast for ACTs or RDTs. Such activity is beyond the scope of the report.

Key Findings

1. The definition of 'need' in this report is based on countries' own estimates of requirements as outlined in funding or policy reports. National quantification is based on a variety of methods such as epidemiological projections based on incidence or health facility consumption data. It is likely that quantification for RDTs in particular will be refined as greater experience, absorption and scale up of this technology occurs.
2. There has been a significant scale up in both ACTs and RDTs in the last few years, as countries accelerate towards the target of universal coverage. RDT 'need' in this report is found to be significantly lower than ACT 'need'. These numbers are based on the countries' own estimates.

	2009	2010	2011
ACT	258 mn	300 mn	277 mn
RDT	97 mn	138 mn	155 mn

The objective of confirmed diagnosis (parasitological diagnosis before treatment) implies that RDT requirements should, in fact, be significantly higher than ACT requirements, given that microscopy is relatively limited. There is still considerable progress required before reaching the universal coverage targets established by the RBM Partnership. Considerable effort is required to achieve scale up of ACTs, and more specifically RDTs to improve case management of malaria.

3. A more detailed analysis comparing the quantification methodologies used in countries with similar endemicities and vector control coverage could potentially identify countries which may have serious under or over-estimates of need.

4. Clarification is required on the definition of 'universal coverage' for RDT and ACT scale up. Many countries are currently reviewing their national malaria strategic plan or undergoing a mid-term programme review, providing an excellent opportunity to make a major step forward in estimating the interaction between different intervention practices. GFATM proposal development provides another opportunity to review targets and plan for accelerated scale-up.
5. Improved understanding of expected consumption and national absorptive capacity is essential during a period of scale-up in order to avoid both stock-outs and over stocking (which potentially leads to significant wastage).
6. Availability of funding is a dynamic process, as different annual budget cycles and donor grants are approved. The information in this report was correct at the time of writing, but will change as (for example) PMI MOPs are confirmed.
7. There is a significant need to improve routine monitoring and tracking of ACT and RDT 'need', funding and consumption data
8. All data should be regularly verified at country level when used for programmatic purposes, to take into account new developments such as the speed of RDT roll out, epidemiologic assumptions, Global Fund or other donor disbursements rates, etc.

Background

Diagnosis and prompt and effective treatment with Artemisinin-based combination therapy (ACTs) are core interventions for the control of malaria.

In the last five years, sub-Saharan Africa (SSA) has experienced a major transition in malaria treatment regimens. Countries have changed their first line treatments from traditional, but largely ineffective monotherapies such as chloroquine and sulphadoxine-pyrimethamine (SP), to the WHO recommended, highly effective, ACTs. This policy change has been accompanied by a rapid increase in the procurement of ACTs, rising from less than 5 million treatments procured globally in 2005 to around 130 million in 2008 (UNICEF 2009).

Countries have also placed increasing emphasis on improving parasitological diagnosis of malaria cases through increased use of microscopy and rolling out the use of rapid diagnostic tests (RDTs), particularly in peripheral health facilities and at community level. Before 2009, WHO recommended parasitological confirmation of all fever cases in areas of low- to moderate-transmission. In areas of stable high-transmission, it recommended clinical diagnosis in the under fives, and parasitological diagnosis in the over fives. In 2009, WHO changed this recommendation to prompt parasitological confirmation by microscopy or RDT for all patients with suspected malaria before treatment is started.

In 2008, the Roll Back Malaria (RBM) Partnership revised its goals and targets in the 2008 Global Malaria Action Plan to achieve universal coverage for all populations at risk using locally appropriate interventions for prevention and case management by 2010. This implied that 80% of people with malaria should be diagnosed and treated with effective antimalarial medicines, such as ACTs within one day of the onset of illness. These targets have been interpreted in different ways at country level; some countries aim for universal coverage of the whole population; others aim for universal coverage of all health facilities or full coverage of public sector distribution mechanisms (health facilities and home management of malaria).

With the rapid increase in RDT and ACT procurement and distribution, there is a vital need to track country scale-up progress, identify major gaps in coverage and identify and address key bottlenecks to scaling-up.

The PSMWG of the RBM Partnership is committed to assisting countries to identify and address major PSM bottlenecks in early diagnosis and prompt and effective treatment. This commitment was re-enforced at the 17th RBM Board meeting in December 2009 with a resolution by endemic country, NGO and Private Sector constituencies on Procurement and Supply Chain Challenges and Systems Strengthening.

The RBM Board recognized that achieving the sustained scale-up of malaria control in all countries will require concerted efforts towards strengthening health systems to enable accurate forecasting, effective procurement and stronger supply chain management. The RBM Board recommended the following actions be undertaken:

- Endemic countries include in their national strategic plans, plans to strengthen country level systems for forecasting, procurement, information and supply chain management capacity
- Increased financing and technical support towards country level capacity building for forecasting, procurement, information and supply chain management systems
- Efforts to improve market intelligence on global demand and supply for malaria commodities
- Ensure monitoring of all commodities
- Enhanced commitment by partners to address procurement and supply management challenges

The PSMWG was requested to collaborate with key partners to ensure that these recommended actions are executed.

As a contributory step, MMV and the PSMWG commissioned a consultancy to review:

- country level quantification assessments for ACTs and RDTs requirements
- the methodologies used to calculate these quantification requirements
- to determine the number of ACTs and RDTs already financed and by whom
- to identify gaps in achieving country targets.

The consultancy also included a review of country identified bottlenecks in scaling up prompt diagnosis and effective treatment. Finally, it summarised key indicators for diagnosis and case management (See Annex 12 for TORs). It is hoped that this information will further contribute towards the identification of how the RBM partnership can better mobilize to support countries towards achieving universal coverage.

Methodology

Much of the information presented in this report comes from a comprehensive review of key national documents including GFATM proposals (particularly for Rounds 7, 8, 9 and the Affordable Medicines Facility Malaria - AMFm), GFATM PSM plans (where available), RBM road maps, US President's Malaria Initiative Malaria Operational Plans (financial year 2009; FY10 plans were reviewed through personal communication), Needs Assessments, third generation strategic plans, Malaria Indicator Surveys (MIS), and ACT watch baseline documents. (See Annex 1: Table summarizing documents consulted by country).

Documents for 45 country programmes were reviewed and the following data were extracted:

1. Data on country specific estimates of ACT and RDT requirements including a brief description of the rationale and methodologies used to obtain these estimates
2. Information on the resources flowing into each African malaria endemic country for ACT and RDT procurement from the various donors including the Global Fund, PMI, UNITAID and the World Bank Booster programme.
3. Annual procurement of ACTs and RDTs by country for 3 years (2009, 2010, 2011) based on national scale up requirements, and the anticipated funding gap (if any) to achieve this.

There was considerable variation in the data available across different documents and from different sources. Data from the most recent documents took precedence over older data. The number of ACTs and RDTs to be procured as outlined in PSM plans

often differed from the figures quoted in the original proposals, indicating the importance of accessing the PSM documents. It was noted for GF Round 8 proposals that the number of treatments and RDTs tended to be revised downwards between submission of the proposals and finalization of the PSM plans.

Where data were unclear, inconsistent or unavailable, country programmes were consulted to clarify data or fill gaps, in collaboration with RBM sub-regional network (SRN) focal points. Where clarifications were required around funding data from specific agencies, country level focal points were consulted (for example PMI, WHO or UNICEF). Validation of data through SRNs and country level focal points was an essential step and ideally all data in this database should be validated by country programmes, particularly as the targets are changing, even since submission of GFATM Round 9 proposals. Several countries are currently re-quantifying their requirements for universal coverage, for example, Burundi, Malawi, Angola and Madagascar. It is recommended that this database should be updated on a quarterly basis, if it is to remain valid. This could be managed by the PSM WG, working in close collaboration with SRN focal points.

RBM Road Maps were reviewed and country-identified key bottlenecks relating to scaling up ACTs and RDTs were summarised (see Annex 11). Finally, key indicators relating to diagnosis and case management from RBM, WHO, GFATM, ACT Watch, PMI and AMFm were also summarised in Annex 12.

Results

Accessing the information

Accessing and collating these documents was time consuming given that all documents were not readily available in a central repository. Fortunately many key documents are readily available on-line, for example those produced for PMI and some, but not all, GFATM documents. However, key data from some agencies, for example, the World Bank, were not readily available. It is recommended that the RBM secretariat maintains a centralized, up-to-date repository of key operational documents for easy access. Recognizing that many of these documents remain confidential (for example GF PSM

plans, GF proposals not yet awarded), it is recommended that these documents are made available through password protected sites to key individuals (to be determined by the RBM secretariat). It is also recommended that the GF should share key documents including PSM plans with the RBM secretariat with an understanding that they will not be generally circulated.

Quantification of Need

Annex 2 briefly summarises the different methodologies used at country level to quantify ACT requirements. Countries have used either:

- An extrapolation of the estimated number of episodes per year by age category, or
- Data from health information systems and health facility consumption data, or
- A combination of the two methods.

Some countries have aimed for universal coverage of the whole population, whilst others have targeted health facility or public sector coverage (which in some countries includes community case management of malaria, usually for children under five years of age).

With the exception of the initial countries invited to submit for phase 1 of the Affordable Medicines Facility malaria (AMFm) (Benin, Ghana, Kenya, Madagascar, Niger, Nigeria, Rwanda, Senegal, Tanzania, Uganda and Zanzibar), there is very limited targeting of the private sector outside of private clinics. Several countries have changed their targets through successive funding proposals and assessments, usually increasing the targets.

It is difficult to assess whether the quantification methods used are reliable estimates of country requirements for universal coverage. An analysis comparing the methodologies used in countries with similar endemicities and vector control coverage could potentially identify countries which may have serious under or over-estimates of need. Additionally a comparison of country quantifications with the most up-to-date consumption data could

also highlight countries with significant differences between their current documented case load and their projected needs.

Many of the projections of ACT need incorporate reductions in cases of up to 50% as a result of universal coverage of vector control interventions from 2010. If the scale-up of vector control interventions falls behind schedule and the predictions of reduced case load are not realised, this will result in significant short falls in availability of ACTs in countries that have incorporated these projections in their calculations.

The projected reduction in ACT consumption is also based on increased use of RDTs for the parasitological diagnosis of all malaria cases. It will therefore be equally important to track the progress of RDT roll-out at the same time as ACT scale-up is monitored.

It will also be important to ensure that countries, especially those with weaker infrastructures, which have factored in rapid increases in coverage of health services, have the absorptive capacity for rapid scale-up. There is a risk that global targets of universal coverage are unrealistic for some countries of Sub-Saharan Africa.

In terms of RDT quantifications, countries have based their calculations of need on the number of fever cases (these may be all fever cases country wide or just those seen by the public health sector, particularly health facilities). The majority of countries (31 countries) are now targeting all age groups (e.g. children under five years of age and over-fives) for parasitological diagnosis of fever cases, in line with new WHO recommendations. 15 countries are targeting parasitological diagnosis of fever cases in children over five years of age only.

This represents an increase in the number of countries targeting all fever cases, since 2008, when 20 of 45 malaria endemic countries in the WHO Africa Region reported having adopted a policy of providing parasitological diagnosis to all age groups (WMR, 2009).

Twenty-one African countries are using or planning to use RDTs at community level. The majority of countries are relying on microscopy for parasitological diagnosis in hospitals and higher level health centres with RDTs in use at peripheral health centers, community level and occasionally in the private sector (see Annex 3).

Until all countries are targeting parasitological diagnosis at all age groups and all levels, including community level, the target for universal coverage of parasitological diagnosis and effective case management will not be achieved.

It is becoming increasingly important to monitor country consumption data and revisit coverage targets to ensure there is neither an under-estimation nor over-estimation of need. Increased emphasis from key RBM partners, including key donors and technical agencies, is required to strengthen routine health information systems to allow monitoring of consumption and real time adjustments of targets and procurement where necessary. This also requires increased emphasis on building stronger health systems.

Data on ACTs: Estimated Need, Financing and Gap

ACT Estimated Need

Annex 4 summarises the country quantification data for ACT requirements. The annual projected ACT requirement (number of full doses) for 2009 is 258 million treatments, rising to 300 million treatments in 2010 and decreasing to 277 million treatments in 2011.

This total is likely to increase further once ACT quantification exercises for the AMFm have been completed. These projections are higher than the GMAP estimate, of 217 million ACT treatments required to achieve universal coverage in Sub-Saharan Africa (GMAP, 2008), based on the World Malaria Report 2008 data. WHO estimate that there were 208 million malaria cases in Africa in 2008 (WMR, 2009).

ACTs Financed

Annex 5 summarises the number of ACTs financed (this includes successful round 9 proposals, successful AMFm proposals and PMI FY 2010 data). These data do not

include private sector AMFm data as countries have not yet quantified their private sector requirements.

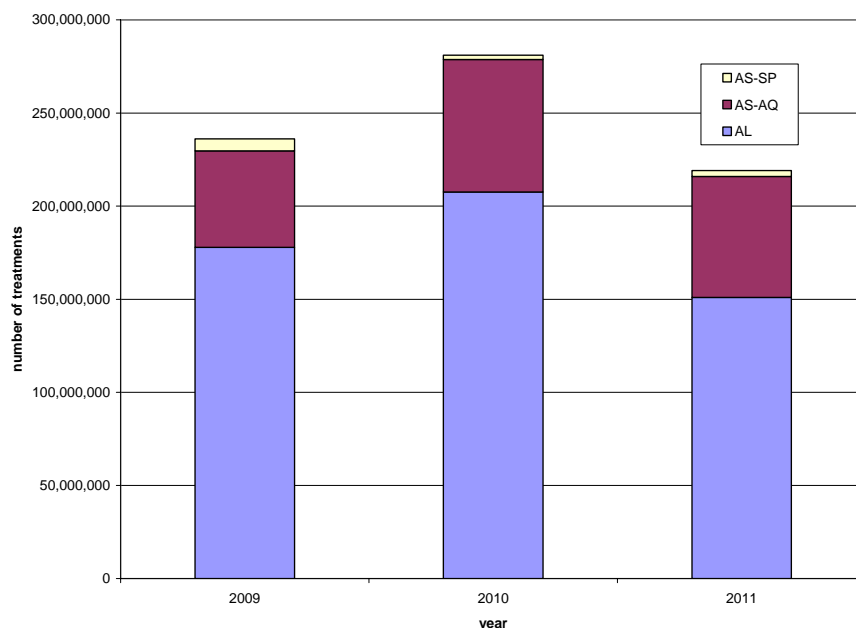
Approximately 236 million ACT treatments are financed in 2009, increasing to 281 million treatments in 2010 and 219 million treatments in 2011. This compares to approximately 100 million ACTs procured globally by the public sector, and an estimated 62 million ACTs distributed in Africa (AFRO region only) in 2008 (WMR, 2009), showing a very significant increase in procurement in 2009.

It is important that demand does not exceed supply and that this is closely monitored.

The data contained in this report and in this database have also been used to further refine the PSMWG forecasting model by providing additional and detailed data for the forecasting model.

If a breakdown is made of the type of ACT financed, the majority of ACTs financed are Artemether-Lumefantrine, followed by Artesunate-Amadiaquine and finally only relatively small quantities of Artesunate – Sulphadoxine –Pyrimethamine (See figure 1)

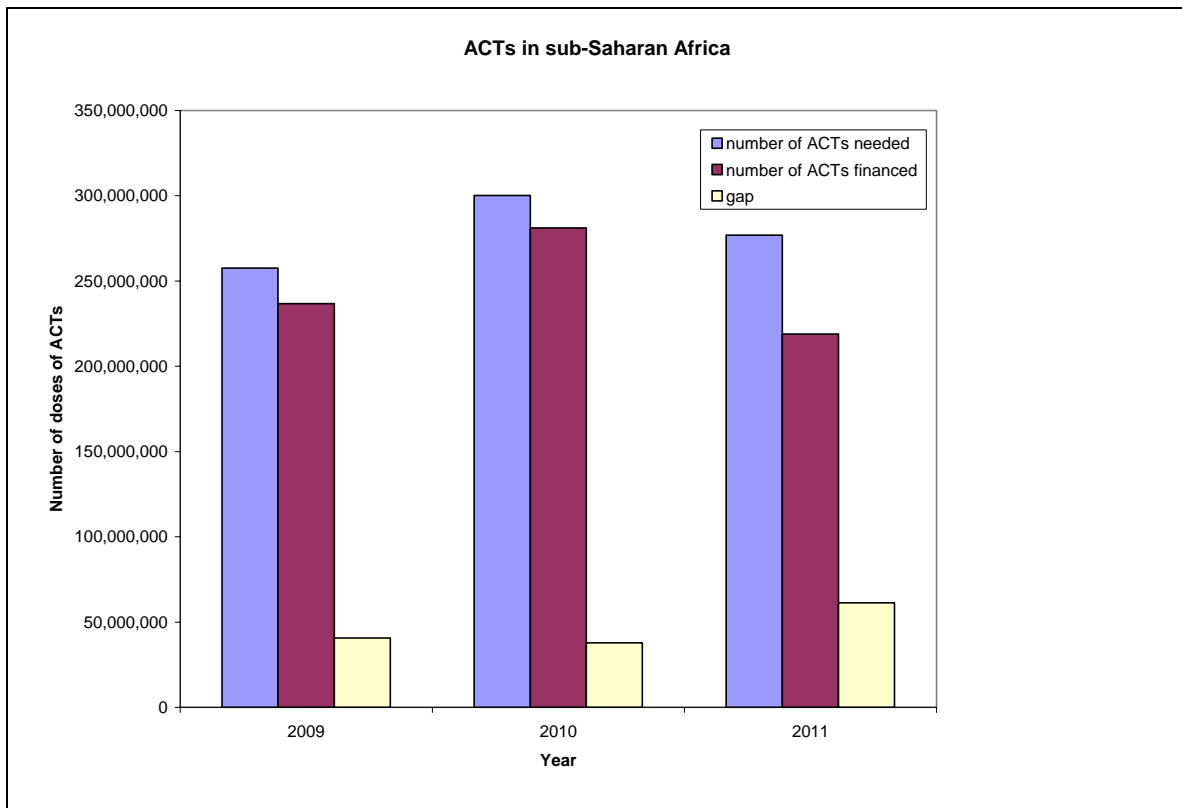
Figure 1: Breakdown of ACTs financed by combination.



Gap in ACTs Required

Annex 6 summarises the gap in ACT requirement, with around 41 million treatments requiring funding in 2009 to achieve country targets, 38 million treatments in 2010 and 61 million treatments in 2011. It will be important to ensure countries, particularly those who have failed to secure funding through GFATM rounds 8 and 9, do not have serious ACT shortfalls. Given some of the uncertainties in ACT quantification data, increased flexibility in sharing ACTs on a regional basis may be one way of avoiding short-term stock outs whilst monitoring systems are strengthened.

Figure 2: ACT quantification, numbers financed and outstanding gaps in SSA 2009-2011



Data on RDTs: Estimated Need, Financing and Gap

RDT Estimated Need

Annex 7 summarises the country quantification data for RDTs. The annual projected RDT requirement for 2009, based on the countries' own forecasts, is 97 million tests, rising to 138 million tests in 2010 and 155 million tests in 2011. The GMAP estimated that to reach universal coverage for all populations at risk with appropriate interventions by the end of 2010, approximately 680 million parasitological diagnoses were needed to confirm suspected malaria fever cases; and it seems unlikely that this target will be reached, even with the ambitious scale-up currently being undertaken.

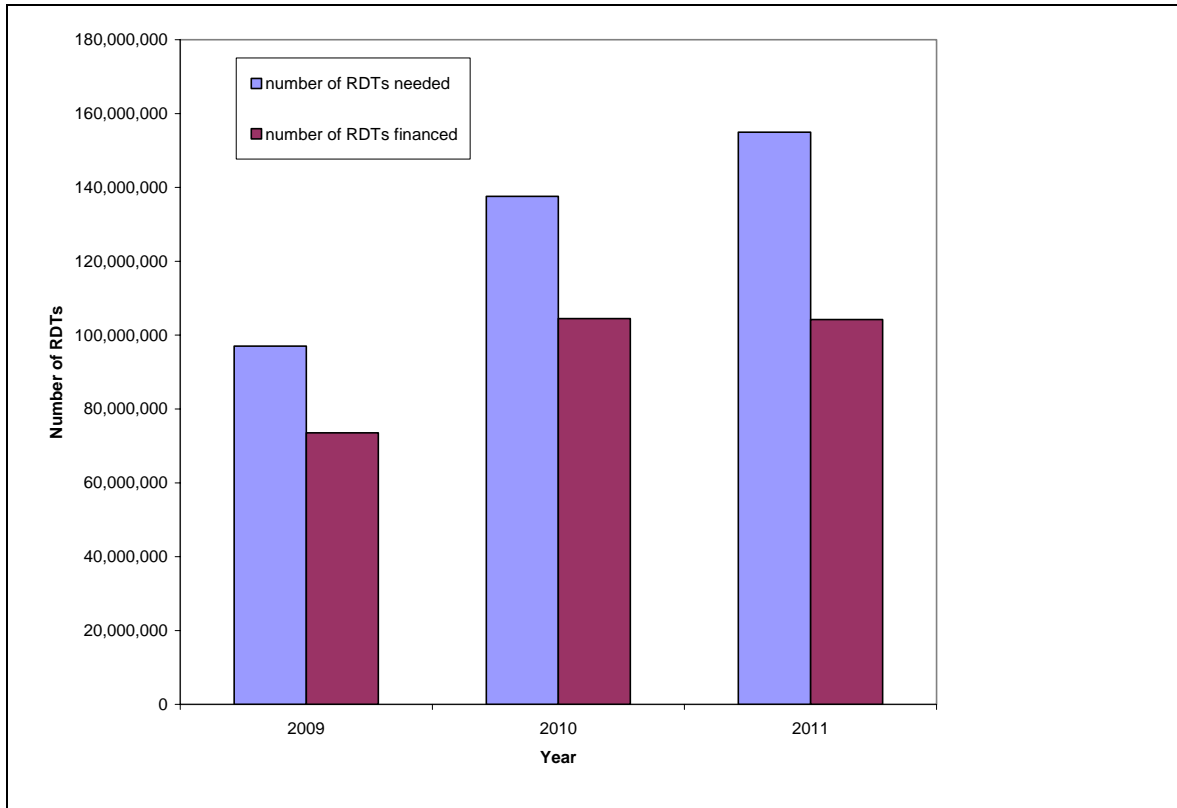
RDTs Financed

Annex 8 summarises the number of RDTs financed (this includes successful round 9 proposals, successful AMFm proposals and PMI FY 2010 data). Approximately 74 million RDTs are financed in 2009, increasing to 105 million tests in 2010 and 104 million tests in 2011. This compares to only 11.5 million RDTs distributed in Africa in 2008 (WMR, 2009) and represents an even more rapid scale up when compared to 2006 when approximately 12.5 million suspected malaria cases were parasitologically diagnosed in sub-Saharan Africa, with 11 million of these cases confirmed through microscopy and just 1.4 million diagnoses using RDTs (GMAP, 2008).

Gap in RDTs required

Annex 9 summarises the gap in RDT requirement, with around 31 million tests requiring funding in 2009 to achieve country targets, 35 million tests in 2010 and 46 million in 2011. It will be important to ensure countries, particularly those who have failed round 8 and 9, do not have serious RDT shortfalls.

Figure 3: RDT quantification, numbers financed & outstanding gaps, SSA 2009-2011



Source of Funding

The table below summarises the source of funding of financed ACTs. As expected, the vast majority of funding for ACTs comes from the GFATM. A small number will come from other partners (PMI, WB, UNICEF/UNITAID and governments).

Around 38 million ACTs will be financed in the first three years of the successful round 9 grants, compared to 149 million treatments in round 8 and 126 million treatments in round 7. This reduction in the number of treatments financed may partly reflect the lower success rate in round 9, with several larger countries failing, but may also reflect the high success rate of a number of large countries in round 7 and 8, and also be due to the fact that most ACTs are procured from year 2 of round 9 grants.

PMI is procuring increasing numbers of ACTs in 2010 in 10 countries. The number of ACTs and RDTs procured by PMI will increase significantly, particularly as new programmes in DRC and Nigeria are implemented. Data for PMI are preliminary¹, based on information available at the time of compilation – this may not be complete due to the funding cycle timeframe. The data on World Bank procured ACTs is sourced from country level plans and documents rather than direct from the World Bank and may be an underestimate of ACTs procured using World Bank resources.

	2009	2010	2011
PMI	29,616,342	21,328,400	44,158,100
WB	21,440,260	19,890,000	16,000,000
GFATM	152,698,957	185,684,652	161,629,768
UNICEF/UNITAID	14,414,895	12,237,584	4,152,472
government	13,870,978	16,430,123	22,515,983
others	13,861,541	11,925,647	10,249,099
total	236,051,866	280,974,585	219,092,428

The table below summarises the source of funding of financed RDTs. As expected, the vast majority of funding for RDTs comes from the GFATM and then from a small number of partners, particularly PMI. Again, the number of RDTs funded by is likely to increase significantly in coming years.

	2009	2010	2011
PMI	3,470,000	4,840,526	10,744,800
WB	3,000,000	6,000,000	3,000,000
GFATM	59,183,853	79,678,832	91,244,184
government	519,387	765,531	4,625,961
others	5,397,491	5,424,692	4,747,579

¹ Note: PMI data are for the previous Fiscal Year, which is implemented in the year noted (i.e. 2009 data in this report are for FY 2009). All data are from national malaria operating plans. 2011 estimates come from national plans and national documents and do not include the vast majority of ACTs and RDTs likely to be financed by PMI in 2011 as the annual planning cycle had not yet been completed at the time of writing.

Country Identified Bottlenecks

Annex 10 summarises the key bottlenecks to achieve universal coverage of RDTs and ACTs identified by countries in RBM roadmaps. These bottlenecks should be used to help further identify key areas of country support by the PSM WG.

Indicators for tracking progress

Annex 11 summarises the key indicators used by various partners to track diagnosis and treatment. It is recommended that a small set of indicators (maximum six to eight) are selected by the RBM PSMWG to track progress and help to identify bottlenecks in scaling up parasitological diagnosis with RDTs and treatment of malaria at country level on a quarterly basis. These will help to identify bottlenecks, raise early warning flags and trigger partner responses towards helping resolve these bottlenecks in a timely manner.

Recommendations

1. This report highlights the prime importance of the need to have improved routine monitoring and tracking of ACT and RDT consumption data in order to avoid both stock-outs and over stocking leading to significant wastage. This will require increased financial investments in routine monitoring by key RBM donors, and an increase in technical assistance to countries by key technical partners, in the context of broader emphasis on health systems strengthening to ensure effective delivery of ACTs and RDTs.
2. A simple checklist of a core set of indicators should be developed in collaboration with the HWG, PSMWG, MERG and case management working group to support countries in tracking ACT and RDT consumption and assist in the early identification and addressing of bottlenecks (See Annex 11 outlining current indicators used by key organizations and groups and draft list of potential key indicators).
3. The RBM partnership should prioritise its support to countries to effectively monitor ACT and RDT consumption and requirements. This will require collaboration

between SRNs, PSMWG, HWG, MERG and the case management working group. The RBM Sub Regional Networks working with country level malaria control programmes could update the tracking checklist during routine telephone conference calls to identify and address key bottlenecks on a quarterly basis. Information gained through SRNs could be triangulated with information tracked through partner focal points using a similar mechanism to that established by the Alliance for Malaria Prevention (AMP). The AMP has instituted an LLIN Distribution Tracking Project that is aimed at eliciting information from local country level partners on the progress of LLIN distributions. It aims to identify and address bottlenecks encountered in the movement of nets at the country level, using focal points from key partners (including PSI, PMI, UNICEF, IFRC, etc). A monitoring template has been developed which should be completed by local partnerships.

4. It is recommended that the ACT and RDT databases should be updated on a quarterly basis. As an example, a centralized database is available for LLINs scale-up coverage, allowing all LLIN-focused data to be consolidated in one place.
5. Manufacturer data could be tracked by the forecasting task force to monitor quarterly procurements against quantities outlined in this report. Countries which are procuring fewer ACTs than expected could have bottlenecks in financial flows, procurement processes, or in-country supply chain. Alternatively, under-procurement could reflect lower ACT consumption requirements than projected.
6. It will also be important to include AMFm consumption data when it becomes available to ensure sufficient ACTs will be available to meet all public sector and private sector requirements. Attention should also be paid to countries which are updating their quantification of need or revisiting consumption data (including Burundi, Malawi, Angola, and Madagascar). There could also be a final validation of the data by country focal points and updated tracking through SRNs to a central focal point.
7. There remains a requirement for increased sharing of documents and information. A database of up to date documents should be maintained by the RBM secretariat including on password protected sites, where data are confidential. Sharing of key

documents by GFATM, particularly PSM plans and also data from World Bank should also be encouraged.

8. An analysis comparing the methodologies used in countries with similar endemicities and vector control coverage could potentially identify countries which may have serious under or over-estimates of need.
9. Further clarification is recommended around a standard definition of universal coverage for ACT and RDT coverage
10. The objective of confirmed diagnosis (parasitological diagnosis before treatment) implies that RDT requirements should, in fact, be significantly higher than ACT requirements, given that microscopy is relatively limited. There is still considerable progress required before reaching the universal coverage targets established by the RBM Partnership. Considerable effort required to achieve scale up of ACTs, and more specifically RDTs to improve case management of malaria.
11. Given the importance of rapid diagnosis and prompt and effective treatment, it is suggested that the PSM Working group holds a one day break out meeting tied to the January working group meeting to come up with a plan of action on how to support countries in monitoring ACT and RDT consumption and develop a mechanism to identify and address bottlenecks in a timely way. Country identified bottlenecks (Annex 10) provide a strong basis on which to prioritise key support areas for the PSMWG.

Bibliography

UNICEF 2009: *Malaria and Children. Progress in Intervention Coverage*. UNICEF, New York USA, 2009

WMR 2008: World Malaria Report, World Health Organization, Geneva Switzerland 2008

Annex 1: Summary of documents reviewed for data included in this report

Country	Documents reviewed	Documents not reviewed
Angola	GF Rd 7 proposal; GF Rd 7 PSM plan; Road Map; PMI MOP FY 09; MIS 07	
Benin	GF Rd 7 proposal; GF Rd 7 PSM plan; Road Map; PMI MOP FY 09; GF Rd 8 proposal (failed); AMFm Proposal; GF RCC RD 3; ACT watch baseline	
Botswana	NMCP data	
Burkina Faso	GF Rd 7 proposal; GF Rd 7 PSM plan; GF Rd 8 proposal; Road Map; Needs assessment, GF PSM plan rd 8	
Burundi	GF Rd 2 RCC; GF Rd 2 PSM plan; Road map; GF rd 9	
C.A.R.	GF rd 8 proposal; Road map, GF PSM plan rd 8	
Cameroon	GF Rd 9 proposal; Road map	
Chad	GF Rd 7 proposal; Road Map, GF Rd 9 proposal (no ACTs)	GF Rd 7 PSM plan
Comoros	GF Rd 8 proposal; Road map; Needs assessment, GF Rd 8 PSM plan	
Congo	GF Rd 8 proposal; Road map; Needs assessment, GF Rd 8 PSM plan	
Cote d'Ivoire	GF Rd 8 proposal; Road map; Needs assessment, GF Rd 8 PSM plan	
Djibouti	GF rd 8 proposal (failed); GF Rd 6 proposal, GF Rd 9 proposal	
DRC	GF R9 proposal; GF Rd 8 proposal; Road map; Needs assessment; ACT watch	GF Rd 8 PSM plan
E. Guinea	GF Rd 5 proposal; Road map	
Eritrea	GF r 9 proposal; GF rd 6 proposal; Road map;	
Ethiopia	GF Rd 8 proposal; Road map; Needs assessment; National strategy; MIS 07; Country quantification exercise GF Rd 8 PSM plan	
Gabon	GF rd 8 proposal (failed); GF Rd 5 proposal; Road map	
Gambia	GF Rd 6 proposal; GF Rd 9 proposal; Needs assessment	
Ghana	GF Rd 8 proposal; GF RCC Rd 4; Road map; Needs assessment; MOP 09; AMFm, PSM plans RCC and RD 8	
Guinea	GF Rd 9 proposal; Needs Assessment; Road map; GF Rd 6 proposal;	
Guinea Bissau	GF rd 9 proposal; Needs assessment, Country PSM plans; GF Rd 6 proposal; Road map	
Kenya	GF rd 9 proposal; Needs assessment; MIS; Road map; PMI MOP 09; Draft strategic plan, AMFm proposal	
Liberia	GF rd 7 proposal; PMI MOP 09, GF Rd 7 PSM plan	
Madagascar	National Strategy; GF RCC 4 proposal GF Rd 7 proposal; PSM plan RD 7, PMI MOP 09;	PSM plan RCC RD 4

Country	Documents reviewed	Documents not reviewed
	AMFm proposal	
Malawi	GF rd 9 proposal; GF Rd 7 proposal; GF PSM plan RD 7; PMI MOP 09;	
Mali	GF RD 9 proposal; GF RD 6 proposal; PMI MOP 09; Needs assessment	
Mauritania	GF RD 9 proposal; PMI MOP 09; Road map	
Mozambique	GF RD 9 proposal; GF RD 8 proposal (failed); PMI MOP 09; National Strategy	
Namibia	GF RD 6 proposal; RCC workplan	RCC 2009 narrative
Niger	GF RD 7 proposal; AMFm proposal; GF RD 7 PSM plan; Road map; Needs assessment GF RD 9 proposal,	
Nigeria	GF RD 8 proposal; Needs assessment; Road map; AMFm proposal; ACT watch baseline; Country requantification, GF RD 8 PSM plan (LLINs)	GF RD 8 PSM plan (ACTs)
Rwanda	GF RD 8 proposal; GF RCC RD 3 proposal; GF RCC PSM plan; GF RD 5 proposal; PMI MOP FY 09; Road map AMFM proposal	
Senegal	GF RD 9 proposal; GF RD 7 proposal; GF RD 7 PSM plan; MOP FY 09; MIS 06; AMFm proposal	
Sierra Leone	GF RD 9 proposal; GF RD 7 proposal; Road map, Updated country quantification	GF PSM plan RD 7
Somalia	GF RD 6 proposal; RD 6 phase 2 draft	
South Africa	Data from NMCP manager	
STP	GF RD 7 proposal; Road map	GF PSM plan RD 7
Sudan N	GF RD 7 proposal; UNITAID POA, GF RD 7 PSM plan	
Sudan S	GF RD 7 proposal; UNITAID POA, GF RD 7 PSM plan GF RD 9 proposal	
Swaziland	GF RD 8 (signed); GF Round 8 PSM plan	
Tanzania	GF RD 8 proposal; GF RD 7 proposal; Road map; GF RD 7 PSM plan; AMFm proposal; PMI MOP 09, Round 9 proposal	
Togo	GF RD 9 proposal; Road map; Needs assessment	
Uganda	GF RD 9 proposal; GF RD 7 proposal; GF RD 7 PSM plan; AMFm proposal; PMI MOP FY 09; Road map ACT watch baseline	
Zambia	GF RD 7 proposal; GF RD 7 PSM plan; Road map; PMI MOP FY 09; MIS	
Zimbabwe	GF RD 8 proposal (not signed); Road map; Needs assessment GF PSM plan RD 8	
Zanzibar	GF RD 8 proposal; Road map PMI MOP 09; AMFm PSM plan round 8	needs assessment

Annex 2: Table 2 - Quantification Methodologies ACTs

Country	Target	Epidemiological estimates	Reduction in cases with increasing vector control	HMM/private sector	2009	2010	2011
Angola	Epidemiological projection based on number of episodes per age category, extrapolated for health facility coverage. MOH is undertaking a new quantification exercise for universal coverage	Unstable transmission 0.2 episodes per person; low but stable 0.5 episodes per person, hyper-endemic 6m -3 yrs 2 episodes, 4-8 yrs 1 episode, 9-13 years 0.7 episodes, adults, 0.5 episodes	no decrease	HMM	50%	60%	70%
Benin	Epidemiological estimate extrapolated for full health facility coverage	2 episodes of malaria per year for <5s	no decrease	HMM	100%	100%	100%
Botswana	HMIS data	HMIS data	incidence reduces from 10 per thousand in 2009, 9, in 2010, 8 in 2011, 5 in 2012, 3 in 2013 and 2 in 2014	no data	100%	100%	100%
Burkina Faso	Epidemiological estimate extrapolated for full health facility coverage	not detailed	no decrease	HMM	100%	100%	100%
Burundi	HMIS data	HMIS data	25% reduction over next 5 years	community based treatment may be introduced in 2010.	100%	100%	100%
C.A.R.	Epidemiological projection based on number of episodes per age category covering 60% of population by 2010	Mean number of episodes of malaria in U5s = 2, Mean number of episodes of malaria in >5s = 1 per 2 persons.	From 2012, a 10% reduction annually	HMM	60%	60%	70%
Cameroon	Epidemiological projection based on number of episodes per age category covering 80% of population by 2010	no data	From 2010 a 10% reduction annually until 2014.	HMM	70%	80%	80%
Chad	HMIS data extrapolated to cover 30% of the population	data extrapolated from district health utilisation data	no decrease	no data	20%	30%	39%
Comoros	Epidemiological projection based on number of episodes per age category covering 100% of population	no data	10% in 2010, 20% in 2011, 30% in 2012	no data	39%	50%	60%
Congo	Epidemiological projection based on number of episodes per age category covering 80% of population	no data	Quantities of ACT will reduce by 10% in 2011, 20% in 2012 & 30% in 2013	no data	100%	100%	100%
Cote d'Ivoire	HMIS data	extrapolation of health facility data	no decrease	HMM	100%	100%	100%
Djibouti	Extrapolation from 2008 survey, estimated one case per year per person	1 case per person per year	Reduction by 10% starting in 2011	Includes community case management	100%	100%	100%
DRC	Epidemiological projection based on number of episodes per age category covering 28% of population & 100% of health facilities	<5s 4 cases, 5-15 -2 cases, >15 1 case	25% decrease in number of cases in 2012, 50% in 2013 & 2014	no data	28%	28%	28%
E. Guinea	Epidemiological projection based on number of episodes per age category covering 100% of the population	1 case per person per year	no data	no data	100%	100%	100%
Eritrea	epidemiological extrapolation for full coverage	0.3 episodes annually per person	10%, 20%, 30%, 40% & 50% from year 1 to year five, respectively	HMM	100%	100%	100%

Country	Target	Epidemiological estimates	Reduction in cases with increasing vector control	HMM/ private sector	2009	2010	2011
Ethiopia	health facility consumption data & projections	standard number of treatments per health facility	no decrease	community health posts in all communities	100%	100%	100%
Gabon	epidemiological estimates	<5s = 4 per year, Expected number of episodes in >5s = 2 per yr	Reduction in morbidity 10% per yr (50% among <5s)	no data			
Gambia	Epidemiological projection based on the number of fever cases	<1s - 2.5 episodes, 2-4 yrs - 1.5, > 5 yrs 0.5	annual decrease of 10%	HMM	100	100	100
Ghana	Epidemiological estimate	<1s 1 case per year, 1-6 2 episodes, >6 1 episode	Reduction in cases due to prevention activities: 10% in 2011 & 2012	HMM	100%	100%	100%
Guinea	Epidemiological projection based on number of episodes per age category covering 80% of population	no data	no decrease	HMM	80%	80%	80%
Guinea Bissau	epidemiological projection with health facility & community level coverage	<3s - 2.5 cases, 3-9 1 case, 9-14 1 case, >14 = 0.5 episodes	10% decrease in 2012	HMM	60%	80%	85%
Kenya	HMIS data	health facility data used	no decrease	includes HMM from year 2 & private sector distribution	100%	100%	100%
Liberia	Epidemiological projection based on number of episodes per age category covering 55% of population by 2010	<5s & PW two episodes per year, >5s one episode per year	no decrease	no data	50%	60%	60%
Madagascar	Combination of HMIS data & extrapolation of number of episodes per age category	episodes in <5s - 2, >5s - 1,	decreasing with increasing vector control	includes HMM & private sector	100%	100%	100%
Malawi	HMIS data	HMIS	no decrease	HMM	95%	95%	95%
Mali	HMIS data	HMIS data	10% decrease in cases annually from 2011	no data	80%	80%	80%
Mauritania	no data		no data	no data	100%	100%	100%
Mozambique	Epidemiological projection based on number of episodes per age category covering 100% of population	<5 - 2 episodes of malaria annually, older children 1.5 & adults 1	decreases	HMM	100%	100%	100%
Namibia	Health management information system data	malaria cases per 1000 used to calculate full coverage - 09 - 40, 10 - 30, 11 - 20, 12 - 10, 13 - 7, 14 - 5;		no data	100%	100%	100%
Niger	Unclear	No data	no data	no data	80%	90%	90%
Nigeria	Epidemiological projection based on number of episodes per age category extrapolated to include increasing population coverage to 80% by 2010	<5yrs = 2.5; 5-9yrs = 1.5; 10-14yrs = 1 & >14yrs = 0.5,	cumulative annual 10% decrease in the number of fever episodes from 2011 An additional annual 10% reduction in the number needing ACTs in > 5s due to use of RDTs for diagnosis from 2011	includes private sector & HMM	30%	60%	80%
Rwanda	Epidemiological projection based on number of episodes per age category	Average number of malaria-like episodes: <5s 2 episodes, 5-19 - 1.5; Adult - 0.5	Decreases	HMM & private sector	100%	100%	100%
Senegal			no data	includes HMM & private sector	87%	90%	93%

Country	Target	Epidemiological estimates	Reduction in cases with increasing vector control	HMM/ private sector	2009	2010	2011
Sierra Leone	Epidemiological projection based on number of episodes per age category	Number of fever episodes/year by age group are <5yrs = 3; over five years = 1	Fever episodes are anticipated to reduce by 10% in 2012, 20% in 2013, 30% in 2014.	HMM	<5s - 50% >5s - 33%	<5s - 60%, >5s - 39%	<5s - 70%, >5s - 46%
Somalia	Based on scaling up coverage through health facilities aiming for 90% health facility coverage		no decrease	includes community health workers working out of health posts	90%	90%	90%
South Africa	100% coverage through health facilities	HNIS data	no decrease	No	100%	100%	100%
STP	Health management information system data	based of health information system data & factors in decrease in the number of cases with increasing vector control	yes	no data	100%	100%	100%
Sudan S	Epidemiological extrapolation of cases at health facility, private sector and community level. < 5 yrs - 2 episodes of fever per year, pregnant woman 1 episode, 5 - 15yrs - 0.75 episodes, > 15 years 0.5 episodes	Number of episodes - < 5 - 2 episodes of fever, pregnant woman 1 episode, 5 - 15yrs 0.75 episodes, and > 15 years 0.5 episodes	no data	HMM & private sector distributions	70%	75%	80%
Sudan N	number of cases & epidemiology	Not specified	yes	no data	90%	90%	90%
Swaziland	Epidemiological projection based on number of categories per age category aiming for 95% coverage through health facilities		No of expected confirmed diagnosis cases is 15 cases per 1000 in 2010, 10 cases per 100 (3700 cases) in 2011, 5 cases per 1000 (1800 cases) in 2012, & 1 case per 1000 (350 cases) in 2013.	no data	75%	95%	95%
Tanzania	Consumption data and extrapolation of epidemiological estimates	<5s 1.7 cases per year, >5s 0.4 episodes,	10% reduction in annual consumption following universal coverage in 2010	HMM & private sector	100%	100%	100%
Togo	Epidemiological projection based on number of episodes per age category & 100% coverage by 2010 through health facilities & community level treatment	Number of fever episodes by age group; < 3 yrs -4.5; 3-9 yrs - 4.5; 9-14 yrs - 1.8; >14 yrs+ 1.8;	yes	HMM	90%	100%	100%
Uganda	Health management information system data extrapolated for increasing coverage including HMM	.	5% decrease in malaria incidence in 2012, 10% in 2013, 20% in 2014, & 30% in 2015	HMM & private sector	100%	100%	100%
Zambia	Health management information system data extrapolated for increasing coverage including HMM	HMIS projection & epidemiological exercise	no data	HMM	100%	100%	100%
Zimbabwe	Epidemiological projection based on number of episodes per age category covering 100% of population	Number of episodes = 1 for < 5's & 0.4 for > 5's.	Malaria incidence rates are reduced by 10% in 09, 35% in 10, 75% in 11 & 80% in 12	HMM	100%	100%	100%
Zanzibar	Epidemiological projection based on number of episodes per age category covering 100% of population	< 5 : 2.5 episodes in areas of high transmission, 1.0 in low; >5s 0.8 in high transmission areas, 0.4 in low	yes	HMM & private sector	100%	100%	100%

Annex 3: RDT Targets

Country	Target	Estimated coverage			Target Group	Level	Comment
		2009	2010	2011			
Angola	Parasitological diagnosis with RDTs in health facilities without microscopes, targeting fever cases in under fives in areas of unstable transmission, over fives countrywide	ND	ND	ND	<5 & >5	HF level	Country is undertaking a new quantification exercise with higher targets and so targets may increase
Benin	ND	ND	ND	ND	ND	ND	
Botswana	Parasitological diagnosis of all fever cases through microscopy and RDTs in health facilities	100 %	100 %	100 %	<5 & >5	HF level	Number of RDTs exceeds number of ACT treatments
Burkina Faso	Parasitological diagnosis of all health facility fever cases in over fives through RDTs and microscopy	75%	100 %	100 %	>5s	HF level	Microscopy - 24% - 36% of diagnosis. RDTs 51% - 72% of diagnosis
Burundi	Parasitological diagnosis of all health facility fever cases in over fives	85%	90%	90%	>5s	HF level	Greater reliance on microscopy with RDTs providing less than 20% of diagnosis
C.A.R.	Parasitological diagnosis of all fever cases in under fives and over fives through microscopy and RDTs at health facility level	28%	35%	60%	<5s & >5s	HF and periphery	Microscopy covers 30% of parasitological diagnosis, RDTs 70%
Cameroon	Parasitological diagnosis of over fives in health facilities and community level	22%	22%	80%	>5s	HF and community level	Microscopy currently targets around 50% of parasitological diagnosis
Chad	Parasitological diagnosis in under fives and over fives in health facilities	16%	25%	32%	<5s & >5s	HF	Parasitological diagnosis of all fever cases in health facilities
Comoros	Parasitological diagnosis in peripheral health facilities and health centres - 25% of HFs year 1, 50% year 2, and 100% year 3 onwards, includes under fives and over fives	39%	50%	60%	<5 & >5	HF - Parasitological diagnosis in peripheral HF and health centres	Microscopy currently around 50% of parasitological diagnosis but RDTs expanded rapidly from 2010, Parasitological diagnosis in peripheral health facilities and health centres - 25% of HFs year 1, 50% year 2, and 100% year 3 onwards, includes under fives and over five
Congo	Parasitological diagnosis in the over fives in health facilities without microscopes	0%	10%	25%	>5s	HF	Target significantly reduced in PSM plan
Cote d'Ivoire	Parasitological diagnosis in health facilities (92% of fever cases in over fives -32% microscopically and 60% RDTs) <5s - 30% of fever cases will be parasitologically diagnosed, All hospitals will have microscopes, RDTs will be used in health centres.	92%	92%	92%	<5s and >5s	health facilities	92% of fever cases will be diagnosed parasitologically at health facility level - in the over fives, 32% microscopically and 60% RDTs. Children under five - 30% of fever cases will be parasitologically diagnosed, All hospitals will have microscopes, RDTs will be used in health centres.
Djibouti	Parasitological diagnosis of all malaria cases (under fives and over fives)	100 %	100 %	100 %	<5 & >5	HF and community level	RDTs cover 34% of parasitological diagnosis focusing on the periphery,

							microscopes cover rest of diagnosis
DRC	Parasitological diagnosis of the over fives in health facilities	28%	60%	75%	>5s	HF	
E. Guinea	ND	ND	ND	ND	ND	Nd	requested data from GF PR and MOH - no response
Eritrea	Parasitological diagnosis of all malaria cases (under fives and over fives)	100 %	100 %	100 %	<5 & >5	HF (those without microscopes) and community level	Microscopy is also being strengthened
Ethiopia	Parasitological diagnosis for under fives and over fives in health facilities including health posts health facility consumption data and projections	100 %	100 %	100 %	<5 & >5	HF including health posts	Microscopy is being strengthened in health centres and hospitals. Country uses pan specific RDTs
Gabon	Parasitological diagnosis in the over fives in health facilities	10%	15%	20%	>5s	HF	Verifying data with NMCP
Gambia	Parasitological confirmation at health facility and community level for under and over fives - microscopy = 15% RDTs - 85%	85%	85%	85%	<5s and >5s	HF and community level	Parasitological diagnosis of all fever cases through microscopy and RDTs
Ghana	Parasitological diagnosis in the over sevens in health facilities using RDTs (30%) and microscopy (40%)	70%	85%	90%	>7	HF level	RDT diagnosis increases by 5% annually
Guinea	Parasitological diagnosis in the over fives in health facilities	100 %	100 %	100 %	>5s	HF	RDTs account for 75% of parasitological diagnosis
Guinea Bissau	Parasitological diagnosis of under fives and over fives in health facilities	25%	40%	60%	<5 & >5	HF level	Aim for 100% parasitological diagnosis of fever cases in health facilities
Kenya	Parasitological diagnosis of under fives and over fives in health facilities	100 %	100 %	100 %	<5 & >5	HF level	RDTs may be introduced at community level over time but are currently only used at HF level
Liberia	ND	ND	ND	ND	ND	ND	ND
Madagascar	Parasitological diagnosis of all malaria cases (under fives and over fives)	100 %	100 %	100 %	<5s and >5s	HF level and community level	Country will requantify if necessary based on consumption
Malawi	Parasitological diagnosis of health facility fever cases in the under fives where there is no microscopy	0%	45%	45%	>5s	HF without microscopes	RDTs will be introduced in 2010
Mali	Policy in place for parasitological diagnosis of all fever cases but not implemented on any scale	80%	80%	80%	<5 & >5	HF level	Targets are for 80% of parasitological diagnosis to be through RDTs, and 20% through microscopy
Mauritania	Parasitological diagnosis of under fives and over fives	0%	10%	15%	<5 & >5	HF level	Targets unlikely to be achieved with unsuccessful round 9 proposal
Mozambique	Parasitological diagnosis of all malaria cases (under fives and over fives)	60%	60%	70%	<5s and >5s	HF and community level	
Namibia	Parasitological diagnosis of all age groups in health facilities	100 %	100 %	100 %	<5 & >5	HF level	
Niger	ND	80%	90%	90%	ND	ND	ND
Nigeria	Parasitological diagnosis of under fives and over fives in health facilities	10%	20%	40%	> 5s	HF, microscopy = 20%, RDTs =	Targets may change - need new PSM plan

						80%	
Rwanda	Parasitological diagnosis of under fives and over fives in health facilities and at community level	100 %	100 %	100 %	<5s and >5s	health facilities and community level	
Senegal	Parasitological diagnosis of over fives in health facilities and at community level	75%	80%	83%	>5s	HF and community level	
Sierra Leone	Parasitological diagnosis of over fives and gradual introduction and scale-up in under fives including HMM	30%	60%	68%	>5s and introducing under fives	HF and community level	Microscopy represents 13% (2006) - 25% (2012) of parasitological diagnosis
Somalia	Parasitological confirmation in health facilities	90%	90%	90%	<5s and >5s	HF level	
South Africa	ND	ND	ND	ND	ND	ND	awaiting data from MNCP
STP	Parasitological diagnosis at health facilities and community level	100 %	100 %	100 %	<5 and >5	HF and community level	Microscopy in higher level health facilities, RDTs in periphery and at community level
Sudan S	Parasitological diagnosis of over fives in health facilities and at community level	50%	54%	58%	>5s only	HF and community level	20% of the malaria diagnostic needs at hospital level, 40% at PHCU level and 100% at PHCC level will be through RDTs
Sudan N	Parasitological diagnosis of under fives and over fives in health facilities	ND	ND	70%	<5 & >5	HF level	Target is to test 70% of all fever cases in health facilities with microscopy or RDTs
Swaziland	Parasitological diagnosis at health facility level of under fives and over fives and active case detection	75%	95%	95%	<5 & >5	HF level	Also includes for use in active case detection
Tanzania	Parasitological diagnosis in under fives and over fives in health facilities	50%	50%	50%	<5 & >5	HF level	Aim to parasitologically diagnose 50% of health facility fever cases
Togo	Parasitological diagnosis of under fives and over fives in health facilities and at community level		80%		<5 & >5	HF and community level	30% of fever cases will be tested using RDTs at community level, 40% in public health facilities (20% through microscopy and 80% through RDTs) and 40% of private sector cases
Uganda	Parasitological diagnosis in health facilities and at community level	ND	65%	100 %	<5s and >5s (confirm)	HF and community level	
Zambia	Parasitological diagnosis at health facilities and through community case management of under fives and over fives	ND	ND	ND	<5 & >5	HF and community level	
Zimbabwe	Parasitological diagnosis of under fives and over fives in health facilities and at community level	100 %	100 %	100 %	<5 & >5	HF and community level	
Zanzibar	Parasitological diagnosis at health facility level of under fives and over fives in health facilities and private sector	90%	90%	90%	<5 & >5	HF and private sector	

Annex 4: Country ACT Estimated Needs 2009-2011 (number of treatments)

NOTE: this is based on estimated needs based on countries own reports at the time of writing, and does not constitute a forecast

Angola	6,467,039	6,648,116	3,473,259	Madagascar	2,378,938	2,452,033	1,225,494
Benin	5,697,929	5,515,071	4,010,503	Malawi	6,700,369	6,893,511	7,201,739
Botswana	17,567	16,406	14,799	Mali	15,728,634	12,372,033	5,390,792
Burkina Faso	8,795,570	5,564,889	3,436,938	Mauritania	459,000	440,000	415,484
Burundi	1,610,816	1,613,638	1,593,245	Mozambique	8,612,756	6,653,280	5,834,400
C.A.R.	1,946,839	1,995,593	1,425,404	Namibia	82,995	63,433	43,095
Cameroon	4,680,207	5,503,924	5,097,184	Niger	1,500,000	1,500,000	1,500,000
Chad	1,964,911	1,964,911	1,964,911	Nigeria	40,388,920	83,362,730	97,637,542
Comoros	193,050	167,665	192,394	Rwanda	4,227,918	3,038,569	3,123,665
Congo	4,412,818	6,802,451	6,999,723	Senegal	3,890,147	3,633,461	3,676,172
Cote d'Ivoire	11,147,366	8,498,968	6,779,599	Sierra Leone	4,245,063	4,481,291	4,109,315
Djibouti	5,500	5,725	5,153	Somalia	90,000	110,000	110,000
DRC	11,940,465	14,758,414	19,001,458	South Africa	10,000	10,000	10,000
E. Guinea	-	214,000	-	STP	38,236	36,899	35,899
Eritrea	69,376	107,187	135,584	Sudan S	4,405,006	5,565,423	6,066,051
Ethiopia	15,000,000	15,000,000	15,000,000	Sudan N	5,500,000	4,500,000	3,800,000
Gabon	1,037,366	1,375,806	956,631	Swaziland	8,450	7,150	4,810
Gambia	543,500	543,500	543,500	Tanzania	27,872,427	25,726,592	13,870,477
Ghana	13,166,087	17,494,853	15,750,991	Togo	2,846,841	2,948,519	2,740,167
Guinea	5,485,628	3,899,241	3,229,681	Uganda	13,436,138	14,270,756	14,031,721
Guinea Bissau	416,799	640,193	776,090	Zambia	2,798,786	2,462,932	2,290,527
Kenya	14,260,140	17,132,875	10,122,506	Zimbabwe	1,012,500	1,012,500	322,024
Liberia	2,319,282	2,918,333	2,918,333	Zanzibar	186,388	200,711	68,503
	2009	2010	2011				
TOTAL	257,599,777	300,125,591	276,937,774				

Annex 5: Country ACTs Financed 2009-2011 (Number of treatments)

NOTE: this is based on estimated finance based on countries own reports at the time of writing, and does not constitute a forecast

Country	2009	2010	2011	Country	2009	2010	2011
Angola	6,396,200	8,105,160	2,731,235	Madagascar	2,378,938	2,452,033	1,225,494
Benin	6,091,604	4,799,133	4,010,498	Malawi	6,360,015	6,534,038	7,201,739
Botswana	17,567	16,406	14,799	Mali	1,582,252	4,985,938	2,181,965
Burkina Faso	7,792,436	3,650,591	2,369,438	Mauritania	496,110	475,574	32,426
Burundi	1,710,816	1,613,638	1,593,245	Mozambique	8,612,756	6,653,280	5,834,400
C.A.R.	2,974,399	2,600,665	1,425,404	Namibia	82,995	63,433	86,190
Cameroon	4,922,385	5,458,198	6,750,081	Niger	863,606	793,714	-
Chad	520,982	701,473	863,915	Nigeria	47,888,920	83,362,730	78,845,343
Comoros	213,390	167,665	192,394	Rwanda	4,227,918	3,038,569	3,123,665
Congo	4,419,341	6,802,373	6,999,723	Senegal	2,589,340	2,958,789	3,457,197
Cote d'Ivoire	6,439,832	7,749,337	7,340,556	Sierra Leone	1,673,728	928,302	867,731
Djibouti	6,000	5,837	5,153	Somalia	90,000	110,000	110,000
DRC	3,618,216	5,192,321	6,968,896	South Africa	10,000	10,000	10,000
E. Guinea	-	204,000	-	STP	38,236	36,899	35,899
Eritrea	845,767	748,629	780,820	sudan S	3,243,154	3,358,519	3,300,122
Ethiopia	15,165,950	9,516,760	10,931,918	Sudan N	6,271,800	2,097,456	3,040,000
Gabon	1,042,935	1,324,124	1,118,714	Swaziland	8,450	7,100	4,810
Gambia	543,500	543,500	543,500	Tanzania	27,872,427	33,967,505	13,870,477
Ghana	12,315,551	18,948,708	15,800,435	Togo	1,272,669	2,948,519	2,391,544
Guinea	2,931,778	3,899,241	3,229,681	Uganda	19,258,797	13,562,543	13,645,370
Guinea Bissau	374,902	439,338	590,447	Zambia	5,540,106	8,462,269	1,847,348
Kenya	14,260,140	16,581,362	-	Zimbabwe	1,125,750	1,012,500	524,524
Liberia	2,368,423	3,962,440	2,918,333	Zanzibar	193,768	200,711	68,503
	2009	2010	2011				
GRAND TOTAL	236,655,858	281,053,329	218,885,939				

Annex 6: Gaps in ACT Treatments

Country	2009	2010	2011	Country	2009	2010	2011
Angola	70,839	0	742,025	Madagascar	0	0	0
Benin	0	715,938	0	Malawi	340,354	359,473	0
Botswana	0	0	0	Mali	14,146,382	7,386,095	3,208,827
Burkina Faso	1,003,133	2,083,231	1,067,501	Mauritania	0	0	449,076
Burundi	0	0	0	Mozambique	0	0	0
C.A.R.	0	0	0	Namibia	0	0	0
Cameroon	0	45,726	0	Niger	636,394	706,286	1,500,000
Chad	1,443,929	1,263,438	1,100,996	Nigeria	0	0	18,792,199
Comoros	0	0	0	Rwanda	0	0	0
Congo	0	0	0	Senegal	1,300,807	622,466	133,715
Cote d'Ivoire	4,707,534	749,631	0	Sierra Leone	2,571,335	3,552,989	3,241,584
Djibouti	0	0	0	Somalia	0	0	0
DRC	8,322,249	9,566,093	12,032,562	South Africa	0	0	0
E. Guinea	0	10,000	0	STP	0	0	0
Eritrea	0	0	0	sudan S	1,161,852	2,206,904	2,765,929
Ethiopia	0	5,483,240	4,068,082	Sudan N	0	1,630,744	760,000
Gabon		51,682	0	Swaziland	0	0	0
Gambia	0	0	0	Tanzania	0	0	0
Ghana	850,536	0	0	Togo	1,574,172	0	348,623
Guinea	2,553,850	0	0	Uganda	0	708,213	348,623
Guinea Bissau	41,897	200,855	185,643	Zambia	0	0	443,179
Kenya	0	551,513	10,122,506	Zimbabwe	0	0	0
Liberia	0	0	0	Zanzibar	0	0	0
GRAND TOTAL	40,727,272	37,896,526	61,313,082				

Annex 7: Country RDT Estimated Needs 2009-2011

NOTE: this is based on estimated needs based on countries own reports at the time of writing, and does not constitute a forecast

Country	2009	2010	2011	Country	2009	2010	2011
Angola	1,877,673	2,000,000	2,000,000	Madagascar	2,165,773	2,023,569	2,052,553
Benin	5,697,929	5,515,071	4,010,503	Malawi	0	4,888,297	4,655,520
Botswana	50,000	50,000	50,000	Mali	1,789,346	5,363,960	9,562,927
Burkina Faso	1,023,195	1,470,246	1,302,197	Mauritania	0	261,513	401,684
Burundi	192,445	187,024	120,752	Mozambique	9,261,232	11,839,190	9,503,610
C.A.R.	835,953	887,688	905,179	Namibia	0	325,290	254,586
Cameroon	828,834	852,870	3,664,248	Niger	4,878,491	4,493,345	3,734,238
Chad	2,600,000	2,600,000	2,600,000	Nigeria	4,172,853	6,028,060	11,197,724
Comoros	52,125	136,000	325,399	Rwanda	584,505	668,374	681,789
Congo	0	37,592	186,080	Senegal	2,717,767	2,495,496	2,536,149
Cote d'Ivoire	2,880,139	5,210,983	4,910,864	Sierra Leone	1,588,570	3,390,083	3,969,996
Djibouti	11,120	11,453	11,791	Somalia	425,000	475,000	525,000
DRC	0	13,581,590	17,486,297	South Africa	30,000	30,000	30,000
E. Guinea	0	214,000	0	STP	38,236	36,899	35,899
Eritrea	34,688	71,458	112,987	Sudan S	1,627,172	1,981,544	2,141,909
Ethiopia	16,226,155	13,868,674	13,187,527	Sudan N	1,537,380	2,306,070	3,074,760
Gabon	118,748	243,645	235,910	Swaziland	35,086	33,591	30,718
Gambia	425,172	441,591	446,606	Tanzania	6,985,719	10,792,326	11,109,921
Ghana	3,239,351	4,528,163	5,466,620	Togo	3,947,990	4,060,600	3,761,851
Guinea	1,913,199	3,322,881	3,122,692	Uganda	1,182,038	3,759,939	6,426,381
Guinea Bissau	1,052,227	1,130,313	1,297,670	Zambia	3,970,458	5,029,845	5,308,985
Kenya	7,931,524	7,931,524	10,429,736	Zimbabwe	2,341,310	2,259,832	1,287,738
Liberia	0	0	0	Zanzibar	779,692	755,195	779,150
GRAND TOTAL	97,051,104	137,592,794	154,938,157				

Annex 8: Country RDTs Financed 2009-2011

NOTE: this is based on estimated finance based on countries own reports at the time of writing, and does not constitute a forecast

Country	2009	2010	2011	Country	2009	2010	2011
Angola	1,200,000	1,600,000	1,000,000	Madagascar	1,690,147	3,272,000	2,636,800
Benin	6,091,604	4,799,133	4,010,498	Malawi	-	4,888,297	4,655,520
Botswana	50,000	50,000	50,000	Mali	40,000	31,500	-
Burkina Faso	818,556	1,176,197	1,113,758	Mauritania	-	60,000	30,000
Burundi	191,875	186,875	120,752	Mozambique	4,000,000	11,839,190	9,503,610
C.A.R.	835,953	887,688	905,179	Namibia	-	325,290	254,586
Cameroon	828,834	852,870	3,664,248	Niger	170,125	2,000,000	-
Chad	542,000	762,500	934,000	Nigeria	5,880,796	9,425,254	13,077,952
Comoros	52,125	136,000	325,399	Rwanda	584,505	668,374	681,789
Congo	0	37,597	186,080	Senegal	2,717,767	3,120,211	3,049,326
Cote d'Ivoire	2,811,861	3,786,326	4,910,864	Sierra Leone	1,376,996	1,201,437	1,036,654
Djibouti	2,480	11,453	11,797	Somalia	419,050	468,350	517,650
DRC	3,329,702	4,778,290	7,239,833	South Africa	30,000	30,000	30,000
E. Guinea	0	204,000	0	STP	38,236	36,899	35,899
Eritrea	445,714	182,407	203,519	sudan S	867,659	885,377	893,395
Ethiopia	15,144,080	10,678,115	13,187,527	Sudan N	1,537,380	2,306,070	3,074,760
Gabon	33,539	41,925	58,693	Swaziland	35,086	33,591	30,718
Gambia	250,000	441,591	446,606	Tanzania	6,985,718	10,792,326	11,109,921
Ghana	3,439,351	5,128,163	5,466,620	Togo	700,000	4,060,600	3,245,471
Guinea	340,151	599,444	924,343	Uganda	2,779,116	1,365,016	-
Guinea Bissau	124,505	1,034,269	1,189,408	Zambia	1,980,537	5,050,903	2,027,661
Kenya	256,000	500,000	310,000	Zimbabwe	2,341,310	2,259,832	1,287,738
Liberia	1,762,581	1,750,000	0	Zanzibar	779,692	755,195	779,150
GRAND TOTAL	73,507,040	104,502,565	104,219,735				

Annex 9: Gaps in the Number of RDTs

Country	2009	2010	2011	Country	2009	2010	2011
Angola	677,673	400,000	1,000,000	Madagascar	475,626	0	0
Benin	0	715,938	1	Malawi	0	0	0
Botswana	0	0	0	Mali	1,729,346	5,332,460	9,562,927
Burkina Faso	204,639	294,049	188,439	Mauritania	0	201,513	371,684
Burun	0	0	0	Mozambique	5,261,232	0	0
C.A.R.	0	0	0	Namibia	0	0	0
Cameroon	0	0	0	Niger	4,708,366	2,493,345	3,734,238
Chad	2,058,000	1,837,500	1,666,000	Nigeria	(1,707,943)	(3,397,194)	(1,880,228)
Comoros	0	0	0	Rwanda	0	0	0
Congo	0	0	0	Senegal	0	0	0
Cote d'Ivoire	68,278	1,424,657	0	Sierra Leone	125,824	1,030,134	2,589,704
Djibouti	0	0	-6	Somalia	5,950	6,650	7,350
DRC	0	8,803,300	10,246,464	South Africa	0	0	0
E. Guinea	0	10,000	0	STP	0	0	0
Eritrea	0	0	0	Sudan S	759,513	1,096,167	1,248,514
Ethiopia	1,082,075	3,190,559	0	Sudan N	0	0	0
Gabon	85,209	201,720	177,217	Swaziland	0	0	0
Gambia	175,172	0	0	Tanzania	0	0	0
Ghana	0	0	0	Togo	3,247,990	0	516,380
Guinea	1,573,048	2,723,437	2,198,349	Uganda	0	797,845	516,380
Guinea Bissau	927,722	96,044	108,262	Zambia	1,989,921	0	3,281,324
Kenya	7,675,524	7,431,524	10,119,736	Zimbabwe	0	0	0
Liberia	0	0	0	Zanzibar	0	0	0
GRAND TOTAL	31125174	34691658	45654746				

Annex 10: Country Identified Bottlenecks in Scaling-Up

Bottleneck	Details	Identified by
Insufficient funds	Lack of funds to support scaling-up to achieve universal coverage	Benin, Burundi, Botswana, Cameroon, Comoros, DRC, Djibouti, Ethiopia, Equatorial Guinea, Gabon, Gambia, Guinea, Guinea Bissau, Kenya, Nigeria, Mali, Mauritania, Namibia, Uganda, Zambia, Togo, Senegal, STP, Sudan, Tanzania, Sierra Leone, Niger
Delays in disbursements of funds	Delayed disbursement of funds	Benin, Burkina Faso, Chad, CAR, Comoros, Congo, Djibouti, Ethiopia, Equatorial Guinea, Guinea, Ghana, Kenya, Liberia, Niger, Malawi, Zimbabwe, Zanzibar, Zambia, Uganda, Tanzania, Senegal, Rwanda, Niger, Madagascar, Mozambique, STP, Sierra Leone, Swaziland, Togo, Sudan N
Procurement delays and weak supply chain	<p>Limited number of commodities available globally for procurement</p> <p>Weaknesses in commodity quantification, forecasting and tracking consumption of commodities</p> <p>Lengthy and bureaucratic procurement procedures</p> <p>Weak supply management systems including weak human resources, infrastructure and logistics support including transportation.</p> <p>Weak inventory management capacity</p> <p>Uncoordinated supply chain management systems creating interruptions in supply of medicines and supplies.</p> <p>Lack of a robust drug logistics management information system to direct the distribution of medicines and supplies from the central to lower levels.</p> <p>Timely distribution of medicines and supplies is hampered by poor road infrastructure.</p> <p>Storage infrastructure is inadequate.</p> <p>Drug regulatory and quality assurance mechanisms are weak.</p> <p>Lack of sufficient qualified staff</p> <p>Weak or none-existent pharmacovigilance system</p> <p>Stock outs</p>	Ethiopia, Benin, Chad, Congo, Djibouti, Gambia, Ghana, Guinea Bissau, Kenya, Zimbabwe, Zambia, Uganda, Tanzania, STP, s Sudan, Sierra Leone, Senegal, Rwanda, Niger, Namibia, Liberia, Malawi, Mauritania, Ethiopia, Madagascar, Rwanda, Eritrea, Sudan N

<p>Weak Health Management Information Systems</p>	<p>Lack of communication infrastructure and data processing facilities</p> <p>Feedback to collecting facilities, particularly from the district level is poor.</p> <p>Capacity for data analysis at all levels is weak.</p> <p>Systems for collecting administrative data on finances and human resources are not well established.</p> <p>Human resources are inadequately skilled in all steps of the information cycle and capacity to use routine information in planning and performance appraisal is low.</p> <p>Systems for capturing data from the private sector and community-based services are weak.</p> <p>Resources for supporting HIS plan are inadequate, resulting in non-implementation of planned activities.</p> <p>Key posts in M&E at all levels remain unfilled either due to lack of funding or lack of suitable candidates.</p> <p>Training programs have not yet reached the level where all the partners and stakeholders are able to process data and information in a timely and uniform manner.</p> <p>Over dependence on information through surveys resulting in a lack of timely information, analysis and adjustments to strategies.</p> <p>Over-reliance on parallel data collection by the malaria programme due to a lack of confidence in routine reporting through the HMIS.</p> <p>Limited dissemination of malaria monitoring information across programmes and down through the health pyramid resulting in limited evidence-based decision making.</p> <p>Limited monitoring of community based malaria prevention and treatment and weak reporting on partner activities and from the private sector.</p> <p>Limited staff training, high health facility workloads, poor systems to allow for transmission of data.</p> <p>Updating HMIS to capture new information requirements from programs such as consumption data of ACTs and use of RDTs.</p> <p>Incomplete and delayed reporting, partly as a result of inadequate numbers of human and financial resources at subnational levels</p>	<p>Cameroon, Cote d'ivoire, Gambia, Ghana, Equatorial Guinea, Ethiopia, Madagascar, Mauritania, Nigeria, Zimbabwe, Zanzibar, Zambia, Uganda Tanzania, Swaziland, s Sudan, Sierra Leone Senegal, Kenya, Somalia, N Sudan,</p>
<p>Laboratory diagnosis through microscopy and RDTs needs urgent strengthening through equipment and training</p>	<p>Shortage of Laboratory Technicians in public health facilities</p> <p>Weak capacity of existing laboratory workers</p> <p>Inadequate laboratory equipment and supplies including microscopy and RDTs</p> <p>Lack of a comprehensive quality assurance and control system especially for RDTs</p> <p>Lack of parasitological diagnosis resulting in over use of ACTs for non malaria fevers.</p> <p>Even when parasitological diagnosis is available, there is poor compliance by health workers with the results.</p>	<p>Angola, Benin, Burkina Faso, Cote D'ivoire, Ghana, Gambia, Mali, Madagascar, Zimbabwe, Zanzibar Togo, Tanzania, Niger, Swaziland, s Sudan</p>

Bottleneck	Details	Identified by
	<p>Poor record keeping</p> <p>RDTs are not used in the private sector.</p> <p>Review of diagnostics policy in the under fives</p>	
<p>Weak Human resource capacity and health system weaknesses</p>	<p>The development of parallel support systems and intervention strategies for priority programmes leaving 'mainstream' systems and strategies undersubscribed and unsupported including use of parallel monitoring, communication/IEC, quality assurance, planning and procurement.</p> <p>Inadequate human resources for health and high HR turnover</p> <p>Limited support supervision system, which makes it difficult to ensure high quality implementation of interventions, identify constraints and institute timely corrective actions.</p> <p>Inadequate transport affects health care delivery, supervision and referral of patients</p> <p>Inadequate training of health workers and laboratory technicians particularly at community level.</p>	<p>Benin, Burkina Faso, CAR, Equitorial Guinea, Burundi, Comoros, Gabon, Tanzania, Kenya, STP, Zimbabwe, Liberia, Rwanda, Zambia, Nigeria, Mauritania, Sierra Leone, Zanzibar, Uganda, Togo, Somalia, Sudan N, Gambia, Guinea Bissau, Madagascar, Cote d'ivoire</p>
<p>Weak Private sector linkages</p>	<p>Policy linkages between the private and public sector are inadequate and the majority of private practitioners receive no orientation/training on malaria policy nor do they have consistent supplies of ACTs. Private sector continues to stock and use monotherapies. Where ACTs are available, prices are prohibitively expensive at US\$5-15 per adult dose.</p> <p>Weak engagement of the private sector:</p> <p>Poor public health services have led to the increased use of the private sector however wide disparities exist in the quality of services provided by this sector.</p>	<p>Benin, Ghana, Guinea, Sudan, Sierra Leone, Niger, Zanzibar</p>
<p>Behavioral change communication</p>	<p>Inadequate interpersonal communication between health workers and the communities has led to slow uptake and misconceptions of malaria control interventions.</p> <p>Communities are insufficiently informed on malaria control</p>	<p>CAR, Gambia, Togo, STP, Mali, Madagascar, Sierra Leone, Zanzibar, Uganda, Swaziland, s Sudan, N Sudan, Zambia</p>

Annex 11: Key Indicators for Malaria Treatment and Diagnosis

Key Indicators Suggested by This Report

Indicator	Used by	COMMENT
Proportion of health facilities with no reported stock-outs of nationally recommended antimalarial drugs lasting more than 1 week at any time during the past 3 months (number and %) (MAL-T4)	RBM, GFATM, WHO, PMI	Health facility stock outs through HMIS. Raises flag on national or international supply chain problems for further investigation.
Number and % of rural / urban outlets with no reported stock outs of nationally recommended anti-malarial drugs, lasting more than one week, at any time, during the last 3 months	AMFm (1 month), ACTWatch, WHO	Private sector stock outs through monitoring of AMFm and ACT watch - Raises flag on national or international supply chain problems for further investigation.
People with fever receiving antimalarial treatment according to national policy (specify artemisinin-based combination therapy versus other therapy) (potentially disaggregated by age and provider)	RBM, GFATM (top ten indicator), WHO, PMI, AMFm, ACT watch	HMIS. Tracking this indicator would allow monitoring of the actual number of treatments (if HMIS is sufficiently reliable) against quantifications in databases - and allows quantification data to be revisited and revised. Question – is this necessary on a quarterly basis?
Number of (confirmed) malaria cases seen by health workers (in facilities and/or outreach) by age group	RBM, GFATM (top ten indicator), WHO, Approximations – AMFm, ACT watch, PMI	HMIS (tracking parasitological diagnosis and verifying if these match quantifications)
Children younger than 5 years of age (or other target age groups) presenting to a health worker with parasitologically documented malaria infection) who received artemisinin-based combination therapy/ Percentage of positive RDTs in patients under age 5 that were treated with an ACT/ Percentage of positive RDTs in patients over age 5 that were treated with an ACT	RBM, GFATM, PMI, WHO	HMIS
Children younger than 5 years of age (or other target age groups) with fever (or preferably with documented malaria infection) who received antimalarial treatment through home-based management (percentage) (MAL-T10)	RBM GFATM	HMM (verify if HMM roll out is on track)
Number of RDTs procured (quarterly) against annual number to be procured	(PMI – number of RDTs purchased with USG funds)	Numbers procured against targets – raises flag of stock-out potential or slower than forecasted scale-up
Number of ACTs procured (quarterly) against annual number to be procured	(PMI – number of ACTs purchased with USG funds) AMFm (quantity of ACTs procured by first line buyers)	Numbers procured against targets - raises flag of stock-out potential or slower than forecasted scale-up

GFATM/RBM

The Monitoring and Evaluation Toolkit

Part 2: Tools for monitoring programs for malaria (GFATM, 2009) summarises key output, outcome and impact indicators for malaria (See tables below for recommended indicators relating to diagnosis and treatment).

Recommended Output Indicators for consideration by NMCPs

	Service delivery area	Output indicators	Data collection frequency	Measurement tools
Case management	Diagnosis	Health facilities with microscopy and/or rapid diagnostic testing capability (number or percentage)	Annually	Health information system or facility records or facility survey
		Blood slides taken and read (number)	Quarterly and annually	Health information system or facility or laboratory records
		Rapid diagnostic tests done and read (number)	Quarterly and annually	Health information system or facility or laboratory records
		Children younger than 5 years of age (or other target age groups) with fever in the last 2 weeks who had a finger or heel stick for malaria testing (percentage) (MAL-T1)	Every 3–5 years	Population-based surveys
		Children younger than 5 years of age (or other target age groups) presenting to a health worker with fever who had a finger or heel stick for malaria testing (percentage) (MAL-T2)	Quarterly and annually	Health information system or facility records
	Treatment	People with fever receiving antimalarial treatment according to national policy (specify artemisinin-based combination therapy versus other therapy) (number) This indicator could be disaggregated for relevant population groups.	Quarterly and annually	Health information system or facility records
		People with fever receiving antimalarial treatment through home-based management (number) (MAL-T3) This indicator could be disaggregated for relevant population groups.	Quarterly and annually	Health information system or facility records
		Blood transfusions ordered or given among children aged 6–59 months (number)	Quarterly and annually	Health information system or facility records or special studies
		Health facilities with no reported stock-outs of nationally recommended antimalarial drugs lasting more than 1 week at any time during the past 3 months (number and percentage) (MAL-T4)	Quarterly	Health information system or facility records

Recommended Outcome indicators for Consideration by NMCPs

Interventions	Outcome indicators	Data collection frequency	Measurement tools
Treatment	Children younger than 5 years of age (or other target age groups) presenting to a health worker with fever (or preferably with documented malaria infection) who received antimalarial treatment according to national treatment policy (specify artemisinin-based combination therapy versus other therapy) (number)	Quarterly and annually	Health information system or facility or community health worker records
	Children younger than 5 years of age (or other target age groups) presenting to a health worker with fever (or preferably with documented malaria infection) who received antimalarial treatment according to national treatment policy within 24 hours of onset of fever (percentage)	Quarterly and annually	Health information system or facility records Health facility surveys
	Children younger than 5 years of age (or other target age groups) presenting to a health worker with fever (or preferably with documented malaria infection) who received any antimalarial treatment (percentage) (MAL-T5)	Quarterly and annually	Health information system or facility or community health worker records
	Children younger than 5 years of age (or other target age groups) with fever in the last 2 weeks who received any antimalarial treatment (percentage) (MAL-T6)	Every 3–5 years	Population-based surveys
	Children younger than 5 years of age (or other target age groups) with fever in the last 2 weeks who received antimalarial treatment according to national policy within 24 hours of the onset of fever (percentage) (MAL-T7)	Every 3–5 years	Population-based surveys
	People with uncomplicated or severe malaria receiving antimalarial treatment according to national guidelines (number) (MAL-T8)	Quarterly	Health information system or facility records
	People admitted with severe malaria receiving correct treatment at health facilities (percentage) (MAL-T9)	Quarterly	Health information system
	Children younger than 5 years of age (or other target age groups) with fever (or preferably with documented malaria infection) who received antimalarial treatment through home-based management (percentage) (MAL-T10)	Quarterly Every 3–5 years	Health information system Population-based surveys, community health worker records

Amongst the top 10 indicators for routine reporting, the GFATM reports the following indicator in the area of malaria case management:

- Number of people with fever receiving antimalarial treatment according to national policy (specify artemisinin-based combination therapy versus other therapy)

Recommended Impact indicators for Consideration by NMCPs

	Impact area	Impact indicators	Data collection frequency	Measurement tools
National-level and population-based	Mortality	All-cause mortality rate among children younger than 5 years of age (MAL-11)	Every 3–5 years	Population-based surveys (DHS, MICS, etc. using direct or indirect methods)
		Deaths attributed to malaria among children younger than 5 years of age (where possible; requires diagnostic or verbal autopsy confirmation) (percentage) (MAL-12)	Every 3–5 years	Population-based surveys with verbal autopsy
	Morbidity	Parasite prevalence: children aged 6–59 months (or larger age groups) with malaria infection (detection of parasitemia by microscopy) (percentage) (MAL-13)	Every 3–5 years (linked to transmission season)	Population-based surveys with diagnostics (such as MIS)
		Anemia prevalence: children aged 6–59 months with hemoglobin measurement of <8 g/dl (percentage) (MAL-14)	Every 1–2 years	Population-based surveys with anemia testing (such as MIS, DHS)
Facility-based	Mortality	Deaths due to malaria (confirmed malaria diagnosis) (percentage) (MAL-15)	Quarterly and annually	Health information system or facility records
	Morbidity	Slide or rapid diagnostic testing positivity rate: people found positive in slide or rapid diagnostic testing among all slides or rapid diagnostic tests taken (percentage) (MAL-16)	Quarterly and annually	Health information system or facility or laboratory records
		Annual parasite incidence: number of malaria cases confirmed by microscopy detected per 1000 population during 1 year (MAL-17)	Annually	Health information system
		Malaria (confirmed) admissions to hospitals (number)	Quarterly and annually	Health information system or facility records
		Malaria (confirmed) admissions among all hospital admissions (percentage)	Quarterly and annually	Health information system or facility records
		Malaria (confirmed) cases seen by health workers (in facilities and/or outreach) (number)	Quarterly and annually	Health information system or facility records
Malaria (confirmed) cases with severe anemia (hemoglobin <8 g/dl) (number)	Quarterly and annually	Health information system or facility records or special studies		

Amongst the top ten indicators for medium-term outcome and impact, the GFATM reports the following relating to malaria:

- All-cause mortality rate among children younger than five years of age (areas of high endemicity)
- Malaria-specific mortality: proportion of deaths attributed to malaria among children younger than five years of age (or other target groups) (areas of low endemicity)
- Number of (confirmed) malaria cases seen by health workers (in facilities and/or outreach) (high endemicity)
- Annual parasite index (low endemicity)
- Slide-positive or rapid diagnostic test–positive rate (low endemicity)

RBM Road Map Indicators

- Population at Risk
- Need - LLINs (nbr); ACTs (treatments); RDTs (nbr tests); IPT (nbr of women to treat); IRS (HH); IRS (\$); M&E (\$); BCC/IEC (\$); Human Resources (\$); Other (\$)
- Commodities already covered and distributed
- Needs already financed
- Needs already covered
- % of needs covered
- Total needs covered
- % of the population covered
- Proportion of the population covered by 2010

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Financing								
Financing gaps								
LLIN		ACT		RDT	IRS	National govt funding	Partner funding	
Gap of LLIN yet to be funded for universal coverage by end 2010 (in millions)	No. LLIN distributed already to reach universal coverage (UC)	Financing gap, as of Jan 2010	Financing gap, as of Jan 2010	Financing gap, as of July 2009	% govt expenditure for health, 2006	Disbursements (2007, mil)	Commitments (2009, mil)	
	n							\$USD
Coverage and logistics								
ITN coverage (%), as of 2008				ACT	RDT	IRS		
ITN ownership, all ages (assuming 1 ITN covers 2 persons)	ITN use all ages	ITN use, <5 years	ACT, national stock, 2010	RDT, national stock 2010	IRS, % of population protected, 2010			
9	10	11	12	13	14			
Impact and quality of HMIS								
Impact from HMIS or model			HMIS quality		Economic impact			
Reduction in malaria deaths, children <5y (%), 2008			Quality of HMIS to measure malaria reduction		Cost savings by health system, 2008			
15			16		17			

PMI: End Use Malaria Case Management Indicators

In countries where RDTs are being used for diagnosis:

1. Percentage that malaria cases comprise of the total patient population examined
2. Total number of malaria cases under age 5
3. Total number of malaria cases over age 5
4. Percentage of malaria cases under age 5 treated with an ACT
5. Percentage of malaria cases over age 5 treated with an ACT
6. Total number of malaria cases diagnosed clinically (not using RDTs or microscopy)
7. Total number of RDTs used (positive and negative)
8. Total number of positive RDTs in patients under age 5
9. Total number of positive RDTs in patients over age 5
10. Percentage of positive RDTs in patients under age 5 that were treated with an ACT
11. Percentage of positive RDTs in patients over age 5 that were treated with an ACT
12. Total number of negative RDTs in patients under age 5
13. Total number of negative RDTs in patients over age 5
14. Percentage of negative RDTs under age 5 that were treated with an antibiotic
15. Percentage of negative RDTs over age 5 that were treated with an antibiotic

In countries where RDTs are not being used for diagnosis:

1. Percentage that malaria cases comprise of the total patient population examined
2. Total number of malaria cases under age 5
3. Total number of malaria cases over age 5
4. Total number of malaria cases diagnosed clinically (not using RDTs or microscopy)
5. Percentage of malaria cases under age 5 treated with only an ACT
6. Percentage of malaria cases over age 5 treated with only an ACT
7. Percentage of malaria cases under age 5 treated with an ACT and an antibiotic
8. Percentage of malaria cases over age 5 treated with an ACT and an antibiotic

Additional considerations:

1. Total number of diagnosed malaria cases that went untreated
2. Total number of malaria cases treated with a monotherapy
3. Total number of severe malaria cases
4. Percentage of malaria diagnoses treated with quinine tabs
5. Percentage of malaria diagnoses treated with quinine injections
6. Percentage of malaria diagnoses treated with SP (not for IPTp)

PMI End-Use Supply Chain Indicators

1. % of facilities that have unexpired product on the day of the supervisory visit
2. Percentage of facilities with stock outs of X on the day of the supervisory visit
3. Percentage of facilities with expired product on the day of the supervisory visit
4. The percentage of facilities experiencing stock outs of X for three days or more in the previous three months
5. Index of availability of ACTs for uncomplicated malaria present at the facility on the day of the supervisory visit
6. Percentage of facilities with at least one person trained in X [create a separate fraction for each area of training identified in questions 113, 5, 7, 9, 11 of the facility questionnaire]
7. Percentage of staff working in X that have been trained in X at each level of the supply chain [create a separate fraction for each area of training identified in questions 3, 5, 7, 9, 11 of the facility questionnaire]
8. Percentage of facilities receiving supervision for logistics/inventory management during the previous six months
9. Percentage of facilities receiving supervision for malaria case management during the previous six months
10. Percentage of facilities with appropriate/acceptable storage conditions on the day of the visit for those facilities with smaller storage areas, answering only questions 1 – 13 of Form 6
11. Percentage of facilities with appropriate/acceptable storage conditions on the day of the visit for those facilities with larger storage areas, answering all of the questions in Form 6
12. Percentage of facilities with up-to-date stock cards
13. % of facilities with SOPs for management of malaria medicines & supplies
14. Percentage of facilities with reference guidelines for malaria case management
15. Order Fill Rate: For facilities that order stock, the percent difference between quantity ordered and quantity received in the last three months
16. Percent difference between calculated quantity and physical inventory on day of visit by facility
17. Reporting Rates: Percentage of facilities submitting stock reports to higher level in accordance with the established timeframe

ACT Watch

- Proportion of outlets that had antimalarials in stock at the time of survey visit.
- Proportion of outlets that had non-artemisinin monotherapy or non-artemisinin combination therapy in stock at the time of survey visit.
- Proportion of outlets that had artemisinin monotherapy in stock at the time of survey visit.
- Proportion of outlets that had ACTs in stock at the time of survey visit, categorized as WHO/UNICEF-approved; nationally-registered or Non-WHO/UNICEF/nationally registered
- Proportion of outlets that had ACTs in stock at the time of survey visit.
- Proportion of outlets reporting no disruption in stock of antimalarials in the last three months;
- Proportion of outlets with expired stock of ACTs.
- Proportion of the population living in areas that achieve coverage standards of availability for a full course of an adult treatment of ACT.
- Proportion of the population that has access to WHO/UNICEF approved ACT
- Proportion of population living in areas that achieve coverage standards of availability for a full course of a child treatment of ACT
- Median cost of full course of an adult treatment of ACT.
- Median cost of full course of an adult treatment of ACT, categorized as: categorized as WHO/UNICEF-approved; nationally-registered or Non-WHO/UNICEF/nationally registered
- Cumulative percentage mark up between retail median price of a full course of an adult treatment of ACT and terminal wholesaler's median price.
- The proportion of children under five with fever in the past 2 weeks receiving antimalarial treatment by type of drug
- The proportion of children under five with fever in the past 2 weeks who received antimalarial treatment within 24 and 48 hours of fever onset
- The proportion of children under five with fever in the past 2 weeks who received antimalarial treatment within 24 and 48 hours of fever onset
- Proportion of people over five with fever in the past 2 weeks taking antimalarials who adhered to the full treatment dose.
- Proportion of people over five with fever in the past 2 weeks taking antimalarials who adhered to the full treatment dose.
- Proportion of people over five with fever in the past 2 weeks taking antimalarials who adhered to the full treatment dose.
- The proportion of all people over five with fever treated with an antimalarial (categorized as WHO/UNICEF registered ACT; Nationally registered ACT; Non-artemisinin monotherapy; Artemisinin monotherapy)
- The proportion of confirmed malaria cases among people over five with fever in the past 2 who received antimalarials within 24 and 48 hours of fever onset
- The proportion of all people over five with fever treated with an antimalarial (categorized as WHO/UNICEF registered ACT; Nationally registered ACT; Non-artemisinin monotherapy; Artemisinin monotherapy)
- Total volume of ACTs sold or distributed in the last week as a proportion of the total volume of all antimalarials sold or distributed in the last week.

AMFm

- Proportion of outlets in rural /urban areas that have any anti-malarials in stock at the time of survey visit
- Proportion of outlets in rural /urban areas that have non-artemisinin monotherapy or non-artemisinin combination therapy in stock at the time of survey visit
- Proportion of outlets in rural /urban areas that have artemisinin monotherapy in stock at the time of survey visit
- Proportion of outlets in rural / urban areas that have non-quality assured ACTs in stock at the time of survey visit
- Proportion of outlets in rural / urban areas that have quality assured ACTs in stock at the time of survey visit
- Number and percentage of rural / urban outlets with no reported stock outs of nationally recommended anti-malarial drugs, lasting more than one week, at any time, during the last 1 month
- Proportion of the rural /urban population living in areas that have access to a full course of an adult treatment with a quality assured ACT
- Proportion of the rural / urban population living in areas that have access to a full course of a child treatment with a quality assured ACT
- Median cost to patients, of a full course of treatment (adult/child) with quality assured ACTs, in rural /urban outlets
- Median cost to patients, of a full course of treatment (adult/child) with non-quality assured ACTs, in rural /urban outlets
- Median cost to patients of a full course of treatment (adult/child) with artemisinin monotherapy, in rural / urban outlets
- Median cost to patients of a full course of treatment (adult/child) with other anti-malarials (CQ, SP) in rural / urban outlets
- Cumulative percentage mark up between retail median price of a full treatment course with quality assured ACTs (adults) and wholesaler median price
- Proportion of children (by age band), with fever in the past 2 weeks who received ACT treatment, by source of provider
- Proportion of children (by age band), with fever in the past 2 weeks who received ACT treatment within 24 hours of fever onset, by source of provider
- Proportion of children (by age band), with fever in the past 2 weeks who received any antimalarial treatment, by source of provider
- Proportion of adults (>15 years) with fever in the past 2 weeks who received ACT, by source of provider
- Proportion of adults (>15 years), with fever in the past 2 weeks who received ACT within 24 hours of fever onset, by source of provider
- Proportion of adults (>15 years) with fever in the past 2 weeks treated with any antimalarial, by source of provider
- Proportion of households in poor areas with one or more inhabitants with fever in the past 2 weeks treated with ACTs, by source of provider
- Proportion of households in poor areas with one or more inhabitants with fever in the past 2 weeks who received ACT treatment within 24 hours of fever onset, by source of provider
- Proportion of households in poor areas with one or more inhabitants, with fever in the past 2 weeks treated with any anti-malarial, by source of provider
- Total volume of ACTs sold or distributed in the last week, as a proportion of the total volume of all anti-malarials sold or distributed in the last week, via outlets across sectors in rural /urban areas (by quality assured product)
- Quantity of ACT procured by first-line buyers ("unit" = boxes of ACTs by type and dosage)

WHO Checklist for National Monitoring and Evaluation Plans

Key impact, outcome and output indicators

Indicator	Operational Definition	Source	Frequency	Level of measurement
Impact				
Under five, all-cause child mortality	The probability of dying before the 5 th birthday, expressed per 1000 live births	Representative, household surveys (DHS, MIS, MICS)	Every ~5 years	National
Malaria parasite prevalence	<u>Numerator:</u> Number of children under five years with malaria parasites, tested either through microscopy or RDTs <u>Denominator:</u> Total number of children under five years surveyed within malaria-endemic areas	Representative, household surveys (DHS, MICS, MIS)	Biennial	National, provincial
Malaria cases with confirmed diagnosis (%)	<u>Numerator:</u> number of clinical malaria cases with a positive confirmed diagnosis using either microscopy or RDTs <u>Denominator:</u> Total number of malaria attendance with clinical diagnosis	HIS/IDSR	Quarterly /monthly	national, provincial, district, facility
Outcome				
Health facilities with no stock outs of antimalarial drugs for more than a week during the last 3 months (%)	<u>Numerator:</u> Number of health facilities with no stock outs of antimalarial drugs for more than one week during the last three months <u>Denominator:</u> Total number of health facilities reporting or surveyed	HIS Health facility surveys.	Quarterly	national, provincial, district, facility
Febrile children who received antimalarial treatment according to national policy within 24 hours (%)	<u>Numerator:</u> Number of children under 5 years old with reported fever in the previous 2 weeks who received antimalarial treatment according to national policy within 24 hours of onset of the fever <u>Denominator:</u> Total number of children under five years with fever surveyed within malaria-endemic areas	Representative, household surveys (DHS, MICS, MIS)	Biennial	National, provincial

WHO Indicators (World Malaria Report, 2009)

B. COVERAGE WITH INTERVENTIONS

CONTROL STRATEGY	INDICATOR	NUMERATOR	DENOMINATOR	DATA TYPE/SOURCE	TARGET
Prompt access to effective treatment					
	2.1 Appropriate antimalarial treatment of children < 5 years within 24 hours of onset of fever ^{e–g} (MDG indicator 6.8)	No. of children < 5 years receiving appropriate antimalarial treatment (according to national policy) within 24 hours of onset of fever	No. of children < 5 years with fever in the past 2 weeks in surveyed households ^e	Household surveys	≥ 80%
Mosquito control with ITNs					
	2.2 ITN use by all persons or children < 5 years or pregnant women (MDG indicator 6.7) ^h	No. of persons (all ages) or children < 5 years or pregnant women who reported sleeping under an ITN during previous night	No. of persons (all ages) or children < 5 years old or pregnant women in surveyed households	Household surveys	≥ 80%
	2.3. "Administrative" ITN coverage ⁱ	No. of persons with ITN from numbers of ITN distributed ^j	No. of persons at risk for malaria	Routine NMCP data	≥ 80%

A. TRENDS IN MALARIA CASES AND DEATHS

IMPACT MEASURE	INDICATOR	NUMERATOR	DENOMINATOR	DATA TYPE/SOURCE	TARGET
Malaria cases					
	1.1 Confirmed malaria cases (microscopy or RDT, per 1000 persons per year) ^a	Confirmed malaria cases per year (< 5 years or total)	Population (< 5 years or total)	Routine surveillance	Reduction in cases per capita: ≥ 50% by 2010, and ≥ 75% by 2015 in comparison with 2000
	1.2 Inpatient malaria cases (per 1000 persons per year) ^b	No. of inpatient malaria cases per year (< 5 years or total)	Population (< 5 years or total)	Routine surveillance	Reduction in cases per capita: ≥ 50% by 2010, and ≥ 75% by 2015 in comparison with 2000
Malaria transmission					
	1.3 Malaria test positivity rate (both microscopy and RDT) ^a	No. of laboratory-confirmed malaria cases	No. of suspected malaria cases with parasite-based laboratory examination	Routine surveillance	No target set, indicates level of control ^c
Malaria deaths					
	1.4 Inpatient malaria deaths (per 1000 persons per year)	No. of inpatient malaria deaths per year (< 5 years or total)	Population (< 5 years or total)	Routine surveillance	Reduction in deaths per capita: 50% by 2010 and ≥ 75% by 2015 in comparison with 2000 ^d
	1.5 Malaria-specific deaths (per 1000 persons per year)	No. of malaria deaths per year (< 5 years or total)	Population (< 5 years or total)	Verbal autopsy (surveys), complete or sample vital registration systems	
	<i>For high-transmission countries</i> 1.6 Deaths of children < 5 years old from all causes (per 1000 children < 5 years old per year)	No. of deaths in children < 5 years old from all causes	Population (< 5 years)	Household surveys, complete or sample vital registration systems	No target set

C. OPERATIONAL INDICATORS USED AT HEALTH FACILITY, DISTRICT AND NATIONAL LEVELS, MEASURED USING ROUTINE HEALTH INFORMATION SYSTEMS

MONITORING	INDICATOR	NUMERATOR	DENOMINATOR	DATA TYPE/SOURCE	TARGET
Diagnosis					
	3.1. Percentage of outpatient suspected malaria cases that undergo laboratory diagnosis ^l	No. of outpatient suspected malaria cases that undergo laboratory diagnosis (by age group)	No. of outpatient suspected malaria cases that should be examined (by age group)	Routine surveillance data	≥ 90%
Appropriate treatment at health facilities					
	3.2. Percentage of outpatient cases that received appropriate antimalarial treatment according to national policy	No. of malaria cases receiving appropriate antimalarial treatment at health facility	No. of outpatient malaria cases expected to be treated at health-facility level with appropriate antimalarial medicine	Routine logistic data	100%
Routine distribution of mosquito nets					
	3.3. ITN distribution to vulnerable sub-groups	No. of ITNs distributed to vulnerable groups ^k	No. of persons in vulnerable groups targeted for receiving ITNs	Routine logistic data	≥ 80%
Antimalarial drug supplies					
	3.4. Health facilities without stock-outs of first-line antimalarial medicines, mosquito nets and diagnostics, by month	No. of health facilities without stock-outs of any first-line antimalarial medicines, ITNs and RDTs, by month ^l	No. of health facilities	Routine logistic data	100%
Reports for programme management					
	3.5. Completeness of monthly health facility reports on logistics or surveillance ^m	No. of health facility reports received each month, on logistics or surveillance	No. of health facility reports expected each month	Routine surveillance and logistic data	> 90%

Annex 12: Purpose of the Consultancy

The Terms of Reference for the consultancy are as follows:

1. Compile data on country specific estimates of ACT and RDT requirements including a description of the rationale and methodologies used to obtain these estimates
2. Compile information on the resources flowing into each African malaria endemic country for ACT and RDT procurement from the various donors including the Global Fund, US President's Malaria Initiative (PMI), UNITAID and the World Bank Booster Program.
3. Compile information on actual and planned procurements for ACTs and RDTs
4. Develop a country mapping matrix for ACTs and RDTs to include the likely annual procurement of ACTs by country for the coming 3 years (2009, 2010, 2011) based on national scale up requirements, and anticipated funding gaps
5. Propose mechanisms to track on a quarterly basis actual procurements in relation to existing plans to help highlight potential bottlenecks that require further investigation and/ or country support.
6. Make recommendations for the PSM WG and wider Roll Back Malaria partnership on possible activities to support ACT and diagnostics scale -up in sub Saharan Africa.

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