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Message from the Program Manager

Welcome our 4th edition of the Division of Malaria Control Surveillance Bulletin. In this issue we will focus on activities undertaken during the third quarter of 2012/2013 (January to March) by presenting information on key malaria indicators along the six surveillance core graphs. In addition, we present the outpatient and test positivity rate graphs covering the four malaria epidemiological zones.

Heavy rainfall was experienced in the country during the last part of the quarter (November and December 2012), leading to flooding in some parts of the country. The heavy rains are predicted to last until June 2013 in endemic and epidemic regions while in the other regions it is expected to cease by May 2013 (See Table 4). Based on the above rainfall pattern, the DOMC wishes to advise Counties in the epidemic zones and seasonal transmission areas to be vigilant while examining their surveillance data to detect any developing epidemics. Health teams should communicate the following messages for epidemic prevention:

1. All people to sleep under LLINs every night.
2. Persons who have been displaced by the floods should move with their LLINs to safer grounds.
3. People to seek treatment at the nearest health facility within in 24hrs following onset of symptoms.

Several activities were successfully undertaken during the quarter under review. Key among them was the planning for the 6th World Malaria Day that was held on April 25, 2013 in Kericho. The theme for the world Malaria Day was "Invest in the Future: Defeat Malaria," and this theme is expected to run up to 2015. Following discussions with the Advocacy, Communication and Social Mobilization Technical Working Group, the slogan "PamojaTuendelee Kuangamiza Malaria". was chosen to further localize the theme. The public sector training of health care workers on Malaria Case Management was also undertaken across the country during the quarter. The training was further extended to the private sector, but only targeted the training of trainers (TOTS). The importance of the T3 policy (testing, treating and tracking) as outlined in the treatment guidelines was emphasized during the training

In addition, the 5th Quality of Care Survey (QoC) was completed and the findings will be disseminated in the next quarter. The QoC Survey is a biannual activity aimed at monitoring health care worker's adherence to the to the treatment guidelines. We reported in the last issue that the malaria surveillance curriculum package was developed, internally reviewed and presented to the M&E Technical Working Group. The external review process is currently underway. The curriculum package will be piloted after the external review, and presented for approval before rolling it out to train health care workers in the country. The curriculum is expected to strengthen malaria surveillance system by equipping health care workers with the knowledge and skills to carry out the surveillance activities.

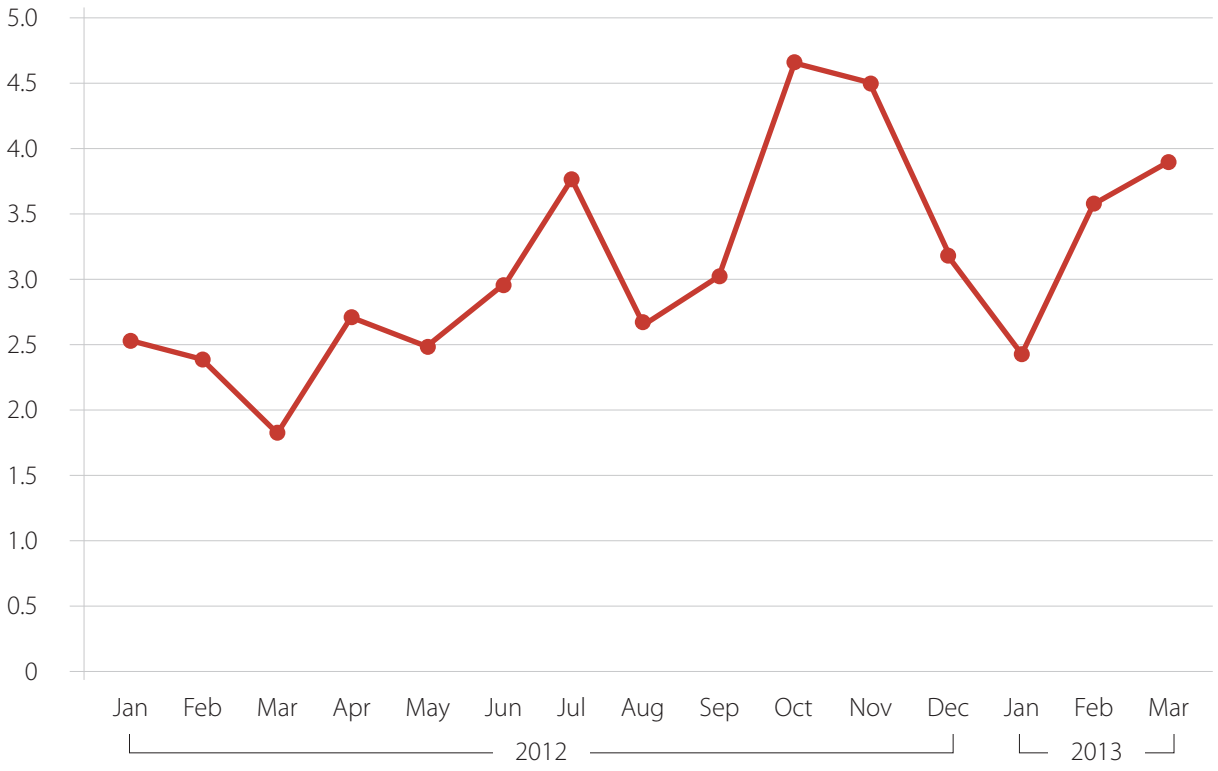
In line with the devolution process, the DOMC has developed Malaria County Profiles and these are at the approval stage. The profiles are expected to support the new county governance structures to understand their malaria disease burden status, and facilitate targeted interventions and priority investments with regard to malaria.

Lastly, there was a marked improvement in reporting rates during the last quarter at over 70 %. I hope that it will improve to over 80% from all data sources so that we can be able to get the true picture of the malaria disease burden in the country and guide policy and programmatic response appropriately.

OUTPATIENT CONFIRMED MALARIA CASES

During the quarter, a steady increase in the number of confirmed outpatient malaria cases from 2.5 in January to 4.0 cases per 1000 person in March 2013 was observed across the country. Figure 1a shows the trends in the number of outpatient malaria cases confirmed to have malaria parasite by microscopy or RDT per 1000 people .This period corresponds to the period immediately after the delayed rains of October–November 2012. .

Figure 1a: Outpatient Confirmed Malaria Cases per 1,000 of Population

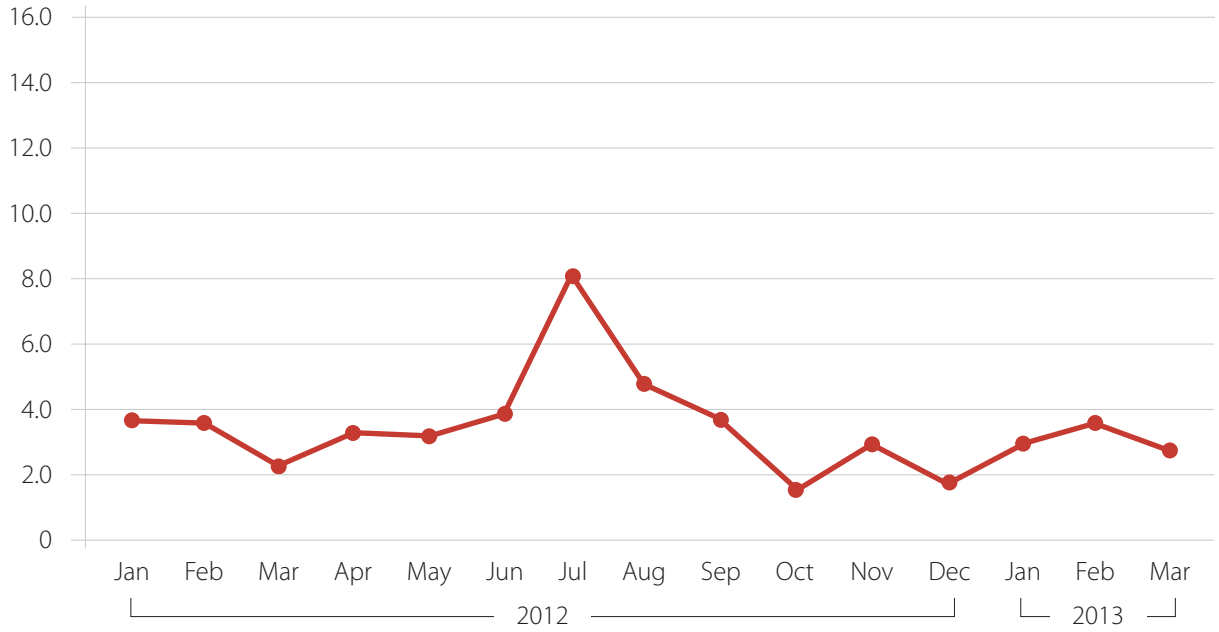


Source(s): DDSR, HMIS, Census 2009

It is however important to note that when the data was disaggregated according the epidemiological zones, the steady increase in outpatient confirmed cases were mainly observed in the endemic region in the last quarter (Jan to March 2013). The seasonal malaria transmission and the epidemic prone areas of the western Kenya highlands showed a slight bump in cases during the months of February and March respectively. As expected the number of outpatient confirmed cases in the low risk areas, remained stable (as before) irrespective of the extended short rains between November and December 2012. Figure 1b shows the percentage of outpatient suspected malaria cases that are confirmed to have malaria parasite by microscopy or RDT per 1000 people by malaria epidemiological zones. Ideally, a rate of less than 1 case per 1000 people indicates readiness for elimination phase.

Figure 1b: Outpatient Confirmed Malaria Cases per 1,000 if Population by Epidemiology Zones

Seasonal Transmission Zone



Endemic zone

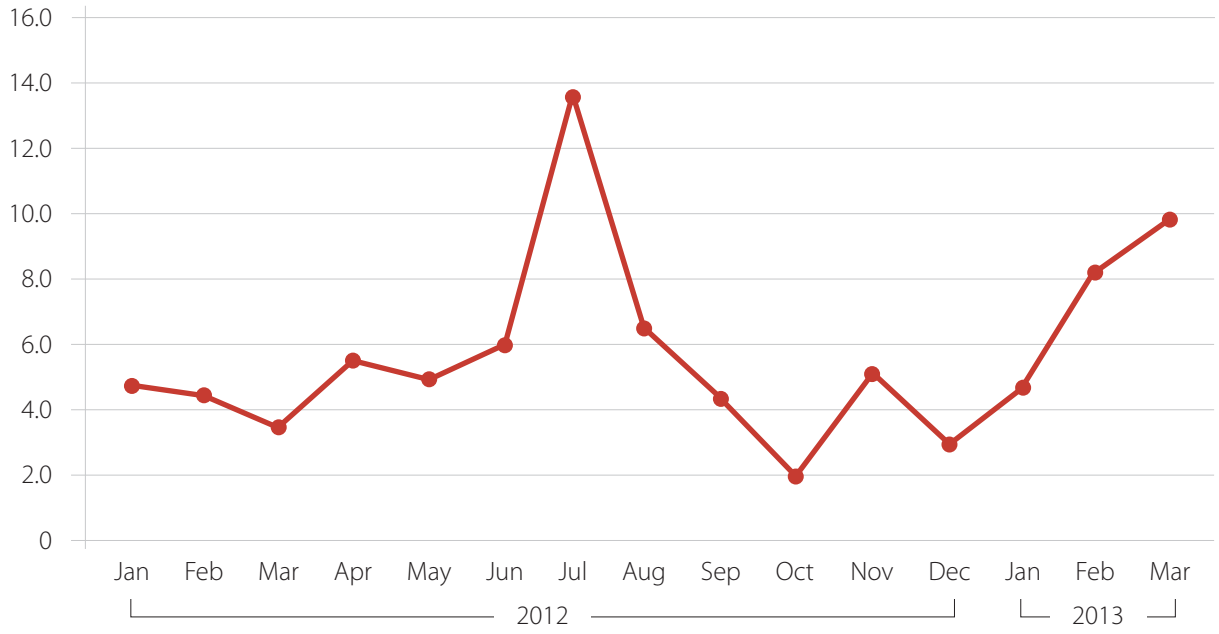
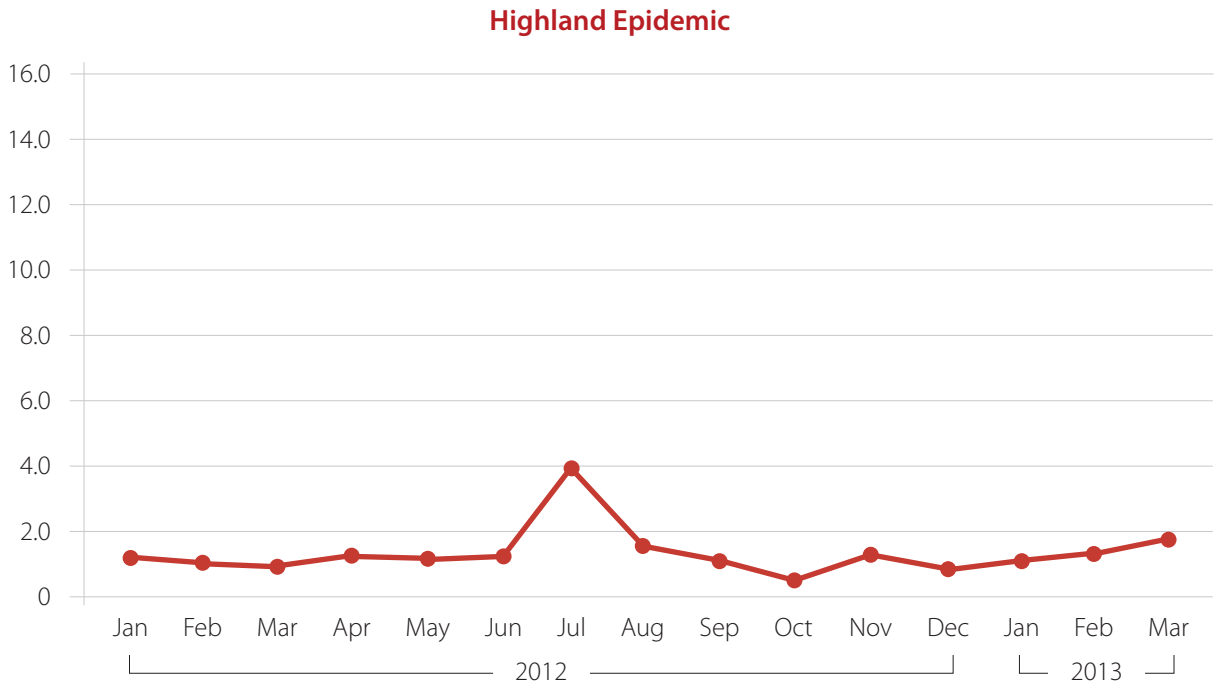


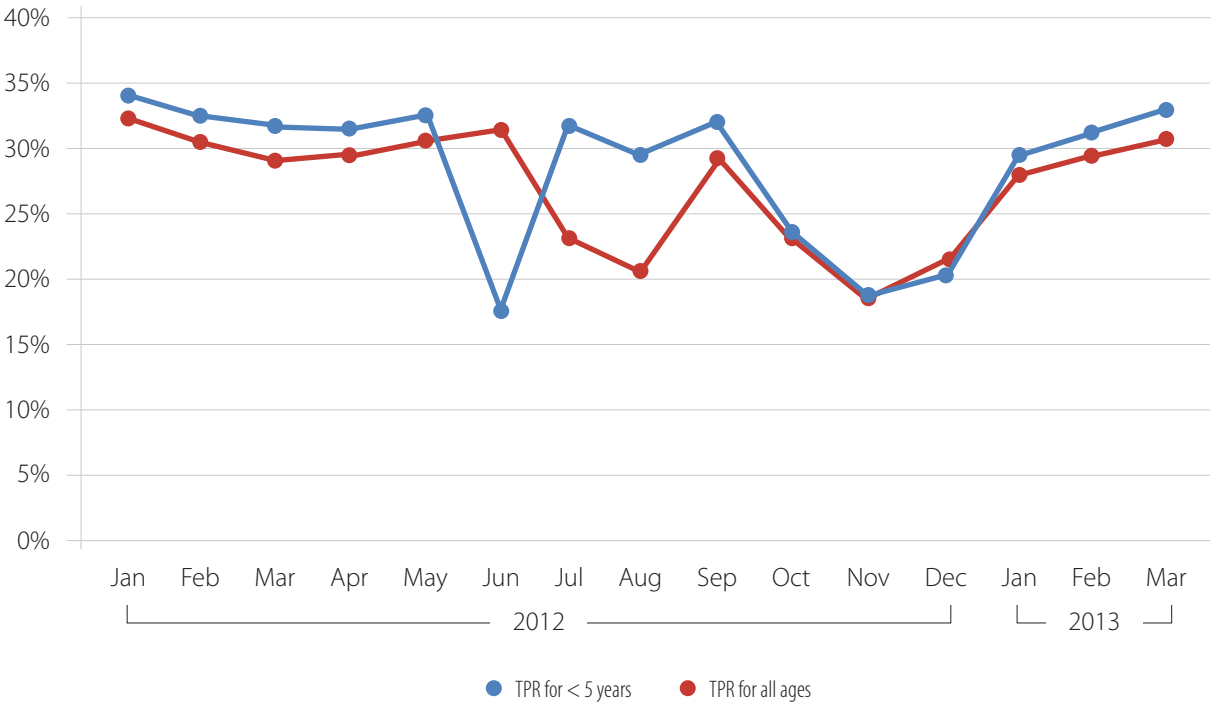
Figure 1b: Outpatient Confirmed Malaria Cases per 1,000 if Population by Epidemiology Zones *continued*



OUTPATIENT MALARIA TEST POSITIVITY RATES AMONG UNDER5 YEARS AND ALL AGES

In line with the observed increase in confirmed cases, the overall test positivity rate slightly increases during the last quarter. In figure 2a and 2b, we present both the overall outpatient test positivity rates for the under-fives and all ages, and the outpatient test positivity rates for the under-fives and all ages by malaria epidemiological zones in Kenya. The graphs are based on data from the weekly reports by the department of diseases surveillance and response (DDSR). These graphs demonstrate the trends with regard to the percentage of the malaria cases that tested positive against the total number of cases tested for parasites.

Figure 2a: Outpatient TPR for < 5 Years and All Ages Nationally



In the disaggregated data, the test positivity rate showed a slight increase in trend only in the malaria endemic region. In the seasonal and epidemic prone areas the TPR showed a decreasing trend during the last quarter.

Figure 2b: Outpatient TPR for < 5 Years and All Ages by Malaria Epidemiological Zones

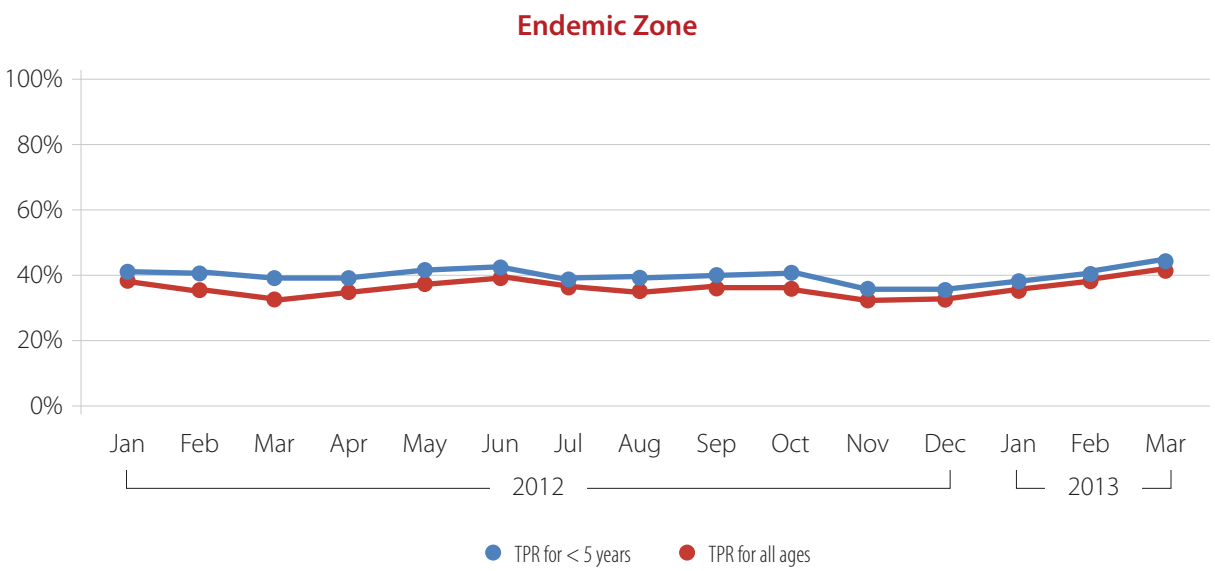
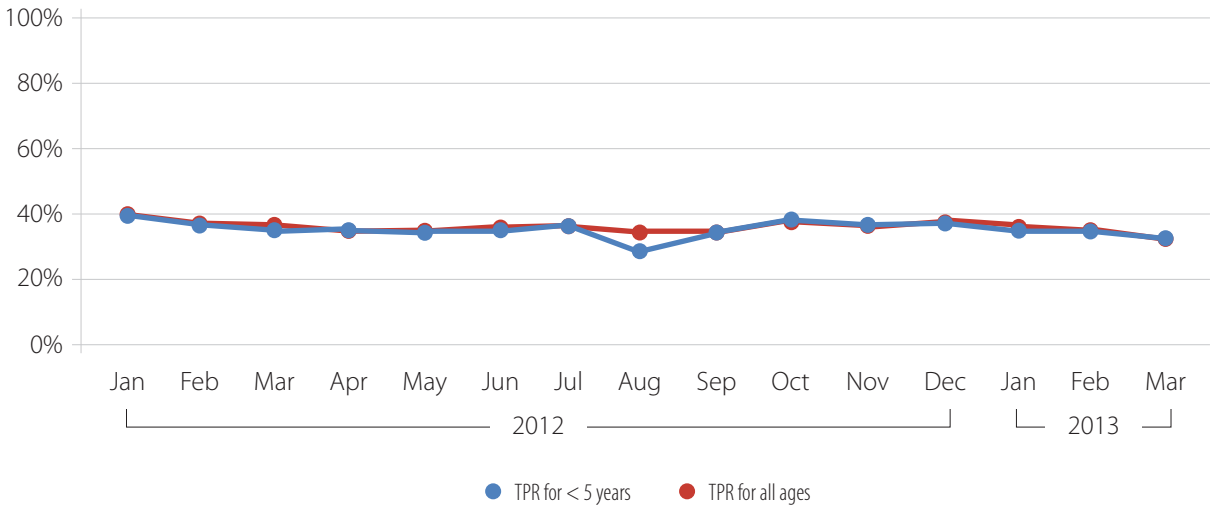
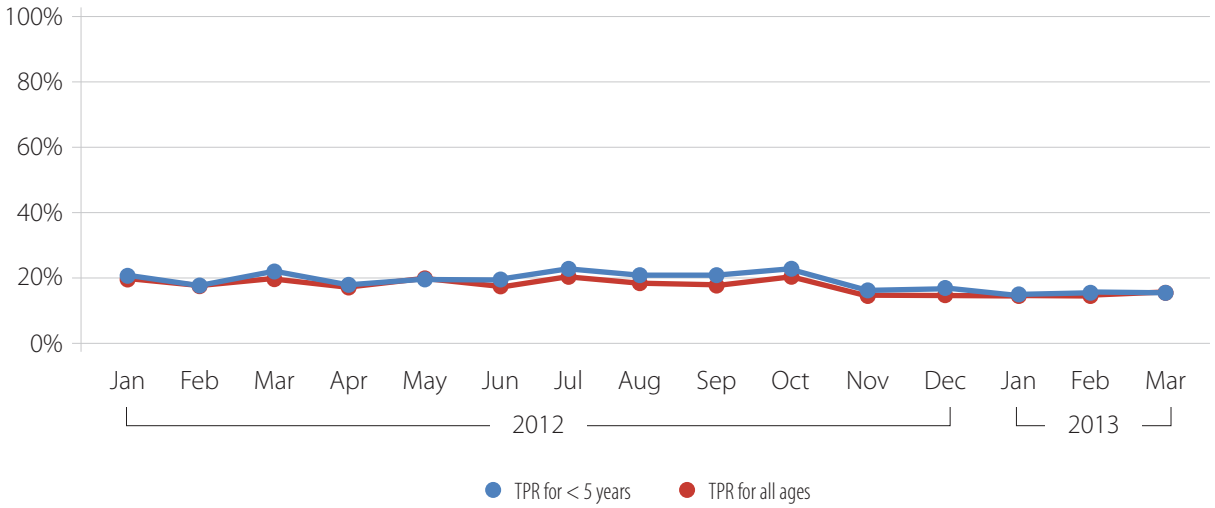


Figure 2b: Outpatient TPR for < 5 Years and All Ages by Malaria Epidemiology Zones *continued*

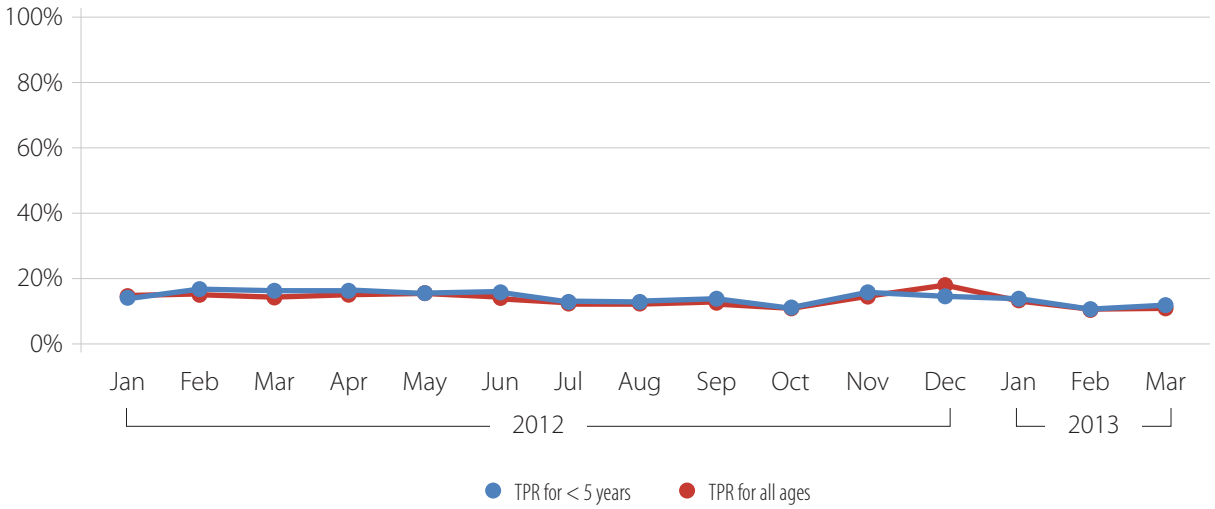
Seasonal Transmission Zone



Highland Epidemic Zone



Low Risk Malaria Zone



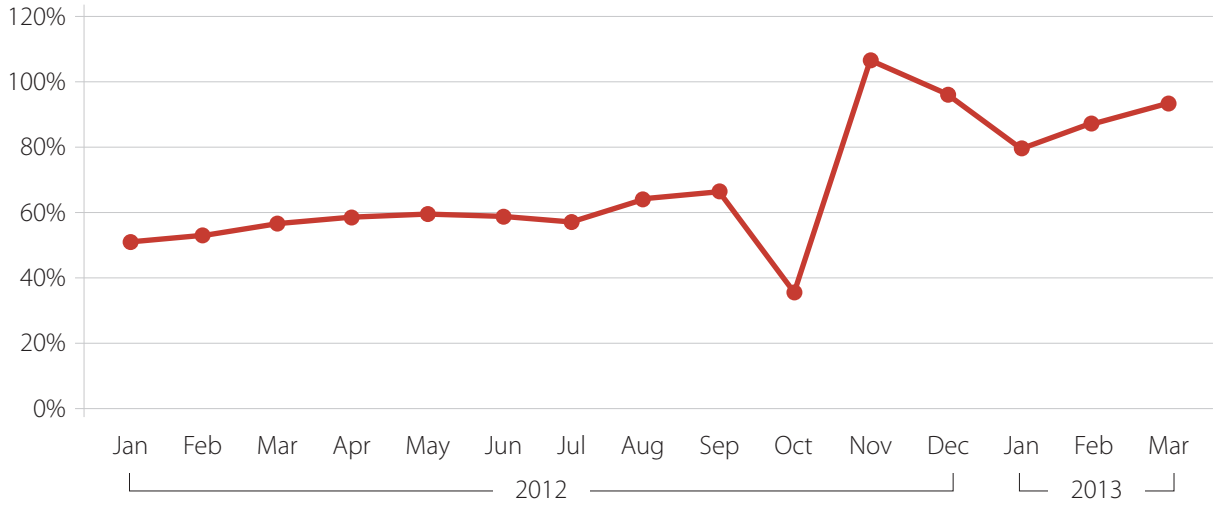
Source: DDSR

SUSPECTED MALARIA CASES TESTED WITH PARASITE-BASED TEST

The data presented in figure 3 illustrates the diagnostic capability of health facilities in the country. The graph shows the percentage of the suspected malaria cases among the outpatient who received a laboratory diagnosis over the reporting period. Accordingly, the percentage of suspected cases tested increased from 80% in January, to above 90% in March. This high percentage could in part be attributed to availability of RDTs for malaria diagnosis. Previously the diagnostics capability of health facilities in Kenya was very low given the number of facilities that could perform microscopy.

Despite the improvement, we suspect that the diagnostic capacity health of these facilities have not yet achieved 90% , and the high percentage observed could be explained in part by double counting of tests undertaken using microscopy and RDTs.

Figure 3: Suspected Malaria Cases Tested with Parasite-Based Test



Source: DDSR

COVERAGE FOR OUTPATIENTS TREATED WITH ARTEMISININ-BASED COMBINATION THERAPY

Kenya has adopted the policy of test before treatment and AL should only be administered to patients who are tested for malaria parasites using a parasitic laboratory test, and the results are positive. In the past, the capacity of health facilities undertake the diagnostic work has been hampered by low coverage of the rapid diagnostic test kits (RDTs) or microscopy. Despite the availability of the RDTs, the discrepancy between the confirmed malaria cases (Target group for AL shown as 100%) and the p ercentage treated with AL continue to be observed, suggesting that the principle of 3T is not being adhered to. Consequently the numbers of patients being treated with AL are more than those diagnosed. Figure 4 demonstrates the percentage of outpatient cases that were treated using artemisinin-based combination therapy over the reporting period.

Figure 4a: Percentage of Outpatient Cases Treated with Artemisinin-Based Combination Therapy

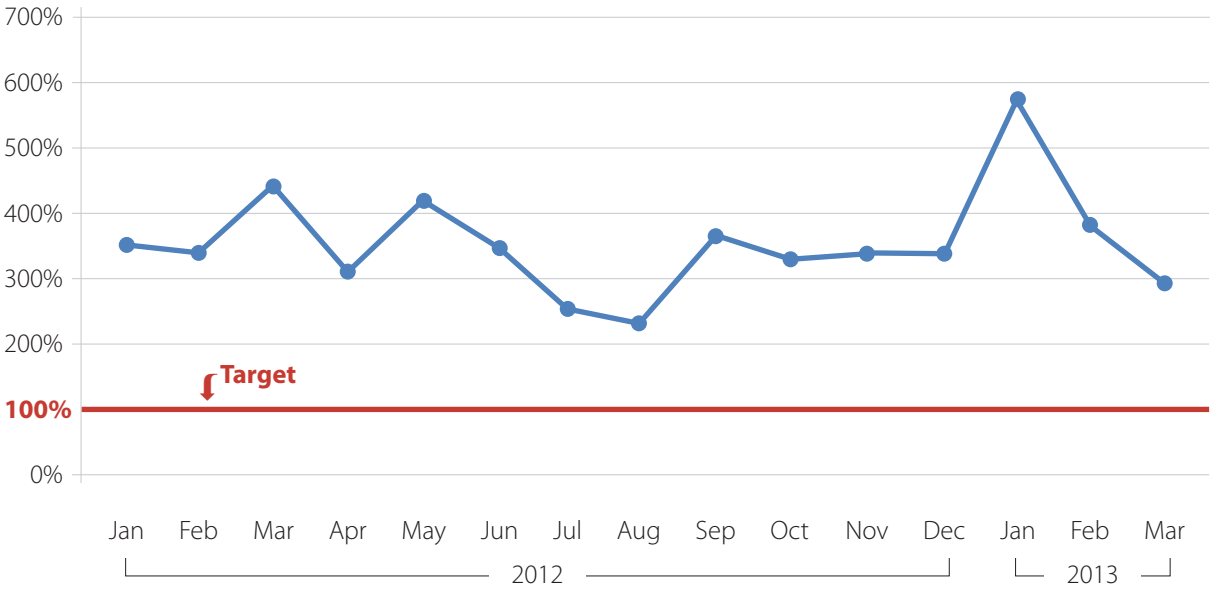
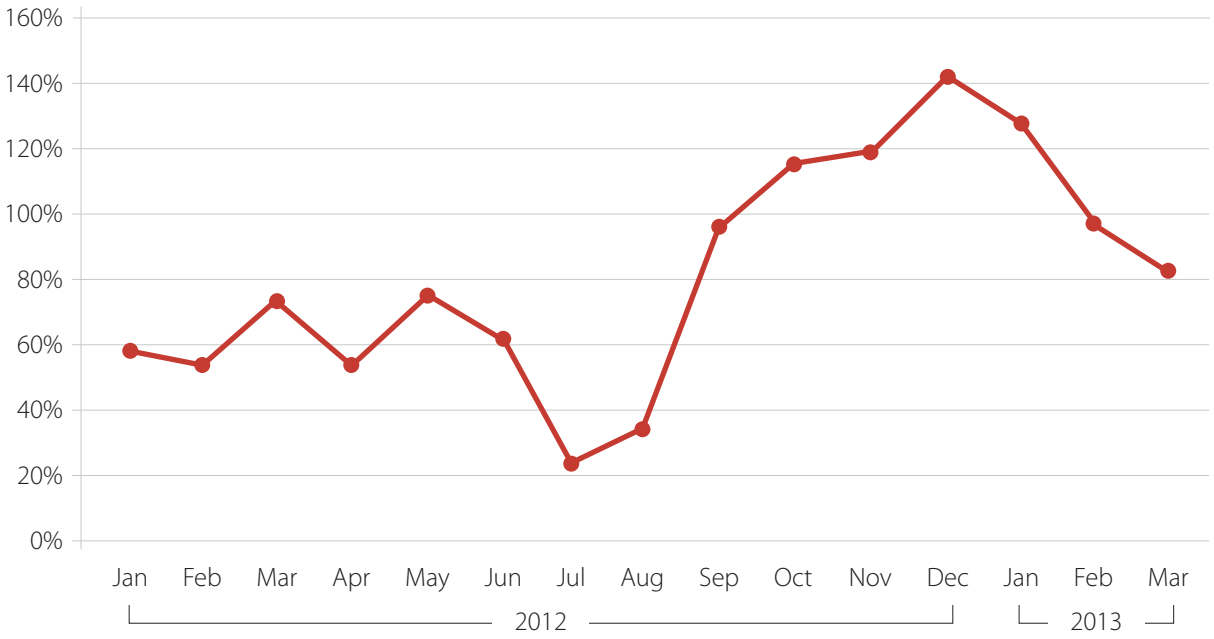


Figure 4b shows the percentage of outpatient suspected malaria cases who received ACT. From this graph we observe that facilities are at times treating more patient with ACTs more than the numbers of patients suspected of malaria.

Figure 4b: Percentage Coverage of Outpatient Suspected Malaria Cases Treated with Artemisinin-Based Combination Therapy



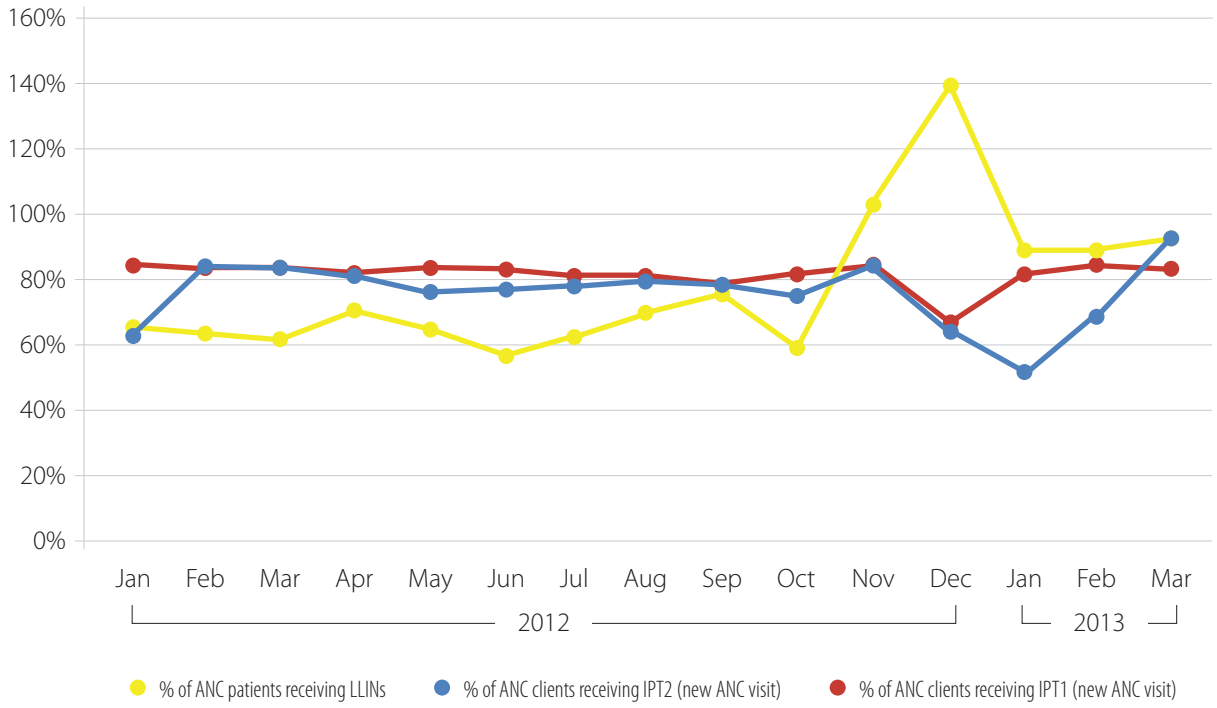
Sources: DDSR/LMIS/DHIS

ACCESS TO LLINS AND TWO DOSES OF IPT AMONG ANC MOTHERS

The prevention of malaria in pregnancy involves combination strategies that together are aimed at reducing maternal and perinatal morbidity and mortality occasioned by malaria. The strategies comprise the antenatal care (ANC) package that comprises of at least two doses of intermittent preventive treatment for expectant (IPT2), Provision of Long Lasting Insecticide Nets (LLINs) and the provision of prompt diagnosis and treatment of fever.

During the last quarter, 90% of ANC mothers received LLINs and 85% received IPT1. The percentage of ANC mothers who received IPT2 increased from 50% in January (when there was health workers strike) to 90% in March. Figure 5 shows the percentage antenatal care clients receiving Insecticide Treated Nets (LLINs) and at least two doses of intermittent preventive treatment (IPT1 &2)

Figure 5: Percentage Coverage of Antenatal Care Clients Receiving Insecticide Treated Nets (LLINs) and at Least Two Doses of Intermittent Preventive Treatment (IPT1 &2)



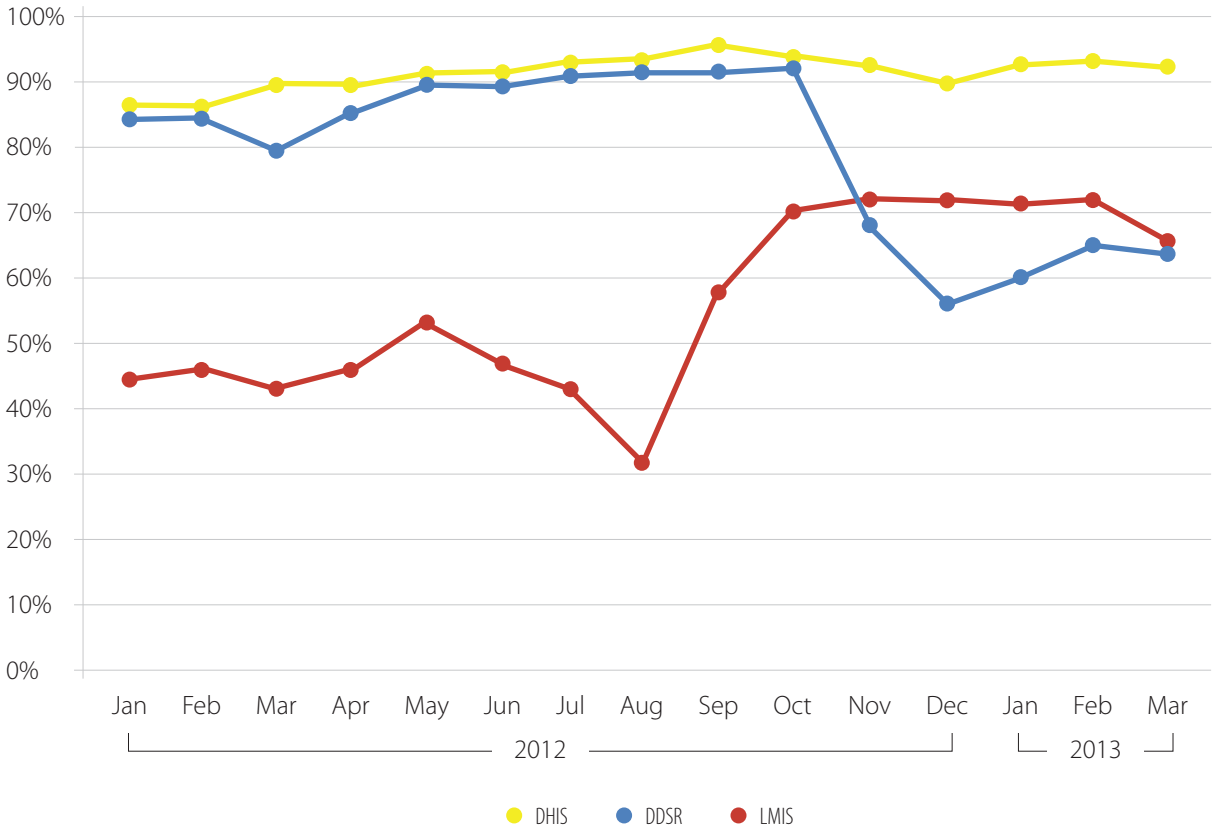
Sources: DHIS/DDSR/LMIS

REPORTING RATES BY DATA SOURCES

The DOMC derives surveillance and monitoring and evaluation data from routine data reporting systems that includes the Division of Health Information Systems (DHIS), Integrated Disease Surveillance and Response (IDSR) and the LMIS. A reporting rate of 90% has been achieved for HIS. However, the reporting rates for LMIS has increased to slightly above 70% which is attributed to moving LMIS to DHIS and the support given to district pharmaceutical facilitators to upload malaria summary forms into the DHIS.

A drastic drop in the reporting rates for IDSR was recorded in November and December, due in parts to migration of IDSR to e-IDSR system that is ongoing.

Figure 6: Reporting rates



From the Counties

This section provides a general overview of data collection and reporting for selected malaria indicators per County. The data is meant to unpack the national level aggregates and assist individual counties in making informed choices. The Counties whose data had discrepancies between AL consumed and the numbers of suspected malaria cases are marked with an asterisk

Table 1: Performance in Data Collection and Reporting for Selected Malaria Indicators by County

Province	County	Number of suspected malaria cases	Number of suspected malaria cases tested	Number of out-patient confirmed malaria cases	Number of out-patients treated for malaria	Number of LLINs distributed to pregnant women	Number of LLINs distributed to under 5 years
Western	Bungoma*	90,577	85,267	30,994	113,769	10,287	12,174
	Busia	117,198	69,410	33,977	89,296	6,701	8,115
	Kakamega	133,870	103,937	41,636	125,624	13,198	11,667
	Vihiga*	44,522	48,048	22,004	57,874	3,882	4,325
Nyanza	Homa Bay*	122,555	70,755	30,864	181,171	9,554	11,234
	Kisii	87,163	73,551	7,775	76,020	9,473	8,060
	Kisumu*	97,773	67,743	29,037	93,494	8,688	8,165
	Migori*	115,904	64,386	25,721	153,949	10,235	11,408
	Nyamira	30,089	17,424	824	21,055	3,435	4,324
	Siaya*	152,045	108,329	52,359	166,280	7,610	9,957

Province	County	Number of suspected malaria cases	Number of suspected malaria cases tested	Number of out-patient confirmed malaria cases	Number of out-patients treated for malaria	Number of LLINs distributed to pregnant women	Number of LLINs distributed to under 5 years
Rift Valley	Baringo	17,955	9,086	1,839	15,251	3,641	3,356
	Bomet	27,250	12,386	797	23,629	4,373	3,735
	Elgeyo/Marakwet	13,966	6,278	1,456	5,696	2,725	3,279
	Kajiado	13,134	13,303	1,663	4,235	5,841	7,624
	Kericho*	33,906	20,431	2,885	49,559	6,001	5,513
	Laikipia	8,134	7,787	1,642	5,649	2	-
	Nakuru	50,408	44,673	9,883	27,836	281	38
	Nandi	37,378	14,479	2,472	32,014	4,549	2,613
	Narok	22,637	19,249	4,105	12,658	6,204	5,026
	Samburu*	4,519	4,967	1,212	4,826	56	80
	Trans Nzoia	51,179	42,109	9,982	13,480	5,428	4,477
	Turkana	62,763	48,898	24,968	9,377	1,033	10
	UasinGishu	19,298	18,142	3,557	19,066	4,751	5,214
	West Pokot	25,016	17,994	3,979	20,599	3,323	5,369
Coast	Kilifi*	11,972	25,969	3,703	17,340	11,002	7,736
	Kwale*	25,611	21,446	6,022	33,968	6,087	3,502
	Lamu	1,804	8,092	794	389	1,097	41
	Mombasa	27,673	59,737	11,325	5,773	6,695	4,728
	TaitaTaveta*	7,561	21,780	2,097	8,176	1,866	754
	Tana River*	1,703	5,208	597	4,757	1,354	125
Eastern	Embu	25,168	35,418	8,361	18,738	2,938	3,319
	Isiolo*	3,476	3,031	741	8,013	1,295	440
	Kitui*	50,688	32,908	12,494	60,806	7,441	10,546
	Machakos*	25,854	36,891	3,914	32,673	6,643	11,033
	Makueni*	38,582	29,516	3,022	41,212	5,263	8,711
	Marsabit	4,514	2,272	174	1,173	357	-
	Meru	88,572	89,892	35,626	54,058	7,187	9,195
	Tharaka-Nithi*	30,536	24,439	9,278	31,745	2,311	2,882
North Eastern	Garissa*	808	13,317	927	10,559	173	-
	Mandera	3,827	2,630	353	1,179	28	-
	Wajir*	2,048	4,533	1,163	5,283	68	167
Central	Kiambu	21,362	63,854	4,634	4,236	5,770	1,789
	Kirinyaga*	2,250	8,524	197	5,323	2,584	-
	Murang'a*	153	6,269	138	3,475	3,914	4,020
	Nyandarua	3,096	9,661	591	2,662	10	-
	Nyeri*	132	3,363	17	757	8	-
Nairobi	Nairobi	20,578	59,466	8,481	13,769	671	366

Table 2: Malaria Treatment by County

Province	County	Number of oupatient suspected Malaria cases	Number of oupatient confirmed Malaria cases	Aggregated Patients on AL	Percent of outpatient suspected malaria cases treated with ACT	Percent of outpatient confirmed malaria cases treated with ACT
Western	Bungoma	90,577	30,994	113,769	126	367
	Busia	117,198	33,977	89,296	76	263
	Kakamega	133,870	41,636	125,624	94	302
	Vihiga	44,522	22,004	57,874	130	263
Nyanza	Homa Bay	122,555	30,864	181,171	148	587
	Kisii	87,163	7,775	76,020	87	978
	Kisumu	97,773	29,037	93,494	96	322
	Migori	115,904	25,721	153,949	133	599
	Nyamira	30,089	824	21,055	70	2,555
	Siaya	152,045	52,359	166,280	109	318
Rift Valley	Baringo	17,955	1,839	15,251	85	829
	Bomet	27,250	797	23,629	87	2,965
	Elgeyo/Marakwet	13,966	1,456	5,696	41	391
	Kajiado	13,134	1,663	4,235	32	255
	Kericho	33,906	2,885	49,559	146	1,718
	Laikipia	8,134	1,642	5,649	69	344
	Nakuru	50,408	9,883	27,836	55	282
	Nandi	37,378	2,472	32,014	86	1,295
	Narok	22,637	4,105	12,658	56	308
	Samburu	4,519	1,212	4,826	107	398
	Trans Nzoia	51,179	9,982	13,480	26	135
	Turkana	62,763	24,968	9,377	15	38
	UasinGishu	19,298	3,557	19,066	99	536
	West Pokot	25,016	3,979	20,599	82	518
Coast	Kilifi	11,972	3,703	17,340	145	468
	Kwale	25,611	6,022	33,968	133	564
	Lamu	1,804	794	389	22	49
	Mombasa	27,673	11,325	5,773	21	51
	TaitaTaveta	7,561	2,097	8,176	108	390
	Tana River	1,703	597	4,757	279	797
Eastern	Embu	25,168	8,361	18,738	74	224
	Isiolo	3,476	741	8,013	231	1,081
	Kitui	50,688	12,494	60,806	120	487
	Machakos	25,854	3,914	32,673	126	835
	Makueni	38,582	3,022	41,212	107	1,364
	Marsabit	4,514	174	1,173	26	674
	Meru	88,572	35,626	54,058	61	152
	Tharaka-Nithi	30,536	9,278	31,745	104	342

Province	County	Number of oupatient suspected Malaria cases	Number of oupatient confirmed Malaria cases	Aggregated Patients on AL	Percent of outpatient suspected malaria cases treated with ACT	Percent of outpatient confirmed malaria cases treated with ACT
North Eastern	Garissa	808	927	10,559	1,307	1,139
	Mandera	3,827	353	1,179	31	334
	Wajir	2,048	1,163	5,283	258	454
Central	Kiambu	21,362	4,634	4,236	20	91
	Kirinyaga	2,250	197	5,323	237	2,702
	Murang'a	153	138	3,475	2,271	2,518
	Nyandarua	3,096	591	2,662	86	450
	Nyeri	132	17	757	573	4,453
Nairobi	Nairobi	20,578	8,481	13,769	67	162

Table 3: Malaria by Epidemiological Zones

Zones	Quarter	No. cases < 5	No. Tested <5	Positive <5	TPR for < 5 Years	Total No. of cases	Total no. tested	Total no. positive	TPR for All Ages
Endemic	Qtr 3 11/12	4,686,851	177,361	70,187	40	10,931,874	453,263	161,531	36
	Qtr 4 11/12	5,656,846	230,018	90,885	40	13,125,350	577,644	209,464	36
	Qtr1 12/13	6,487,270	263,741	102,626	39	15,629,470	688,235	244,302	35
	Qtr2 12/13	2,742,910	135,215	48,687	36	6,679,667	353,189	115,011	33
	Qtr3 12/13	14,887,026	628,974	242,198	39	35,434,487	1,619,068	568,777	35
Seasonal Transmission	Qtr 3 11/12	2,011,880	88,202	32,357	37	5,665,111	272,837	103,414	38
	Qtr 4 11/12	2,158,643	99,410	34,324	35	6,228,514	322,125	113,471	35
	Qtr1 12/13	2,509,285	129,078	41,543	32	7,209,170	409,759	143,458	35
	Qtr2 12/13	914,374	54,622	20,019	37	2,765,362	173,913	64,153	37
	Qtr3 12/13	5,582,302	283,110	95,886	34	16,203,046	905,797	321,082	35
Highland Epidemic Prone Areas of Western Kenya	Qtr 3 11/12	1,536,909	51,151	10,177	20	3,976,976	147,455	28,461	19
	Qtr 4 11/12	1,821,326	60,497	11,974	20	4,842,338	177,342	34,451	19
	Qtr1 12/13	2,233,674	75,561	17,324	23	5,902,037	235,849	46,823	20
	Qtr2 12/13	943,488	43,121	7,531	17	2,632,257	131,598	21,358	16
	Qtr3 12/13	4,998,488	179,179	36,829	21	13,376,632	544,789	102,632	19
Low risk malaria areas	Qtr 3 11/12	886,029	56,696	9,024	16	2,515,119	165,972	25,194	15
	Qtr 4 11/12	1,183,348	69,891	10,423	15	3,290,538	217,259	31,786	15
	Qtr1 12/13	1,202,872	84,768	11,759	14	3,430,367	268,321	35,708	13
	Qtr2 12/13	463,862	44,161	6,543	15	1,382,055	138,202	21,253	15
	Qtr3 12/13	2,850,082	198,820	28,725	14	8,102,960	623,782	88,747	14

Table 4: Onset of Long Rains & Expected Cessation Dates

Region	Onset Dates	Cessation Dates
Counties in the Lake Basin and in Highlands West of the Rift Valley	The rains will be enhanced from 2nd to 3rd week of March 2013	Rainfall will continue into June 2013
Southern parts of the Rift Valley	The rains will be enhanced from 3rd to 4th week of March 2013	2nd to 3rd week of May 2013
Central Rift	3rd to 4th week of March 2013	Continues into June but will reduce during the 4th week of May
Central Highlands including Nairobi Area	3rd to 4th week of March 2013	2nd to 3rd week of May 2013
South eastern counties	3rd to 4th week of March 2013	1st week of May 2013. Generally dry for most of the month of May
Coastal Strip	4th week of March to 1st week of April 2013	Continues into June 2013
North-eastern and North-western districts	4th week March to 1st week April 2013	1st to 2nd week May 2013. Most areas to remain generally dry in May 2013

Source: Kenya Meteorological Department, Outlook for March–May 2013