Malaria Surveillance Bulletin

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Message from the Program Manager

Welcome to our 11th issue of the Kenya Malaria Control Program's Quarterly Surveillance bulletin. This issue focuses on the second quarter of the financial year 2014/2015 i.e. October to December 2014, with key malaria indicators demonstrated using six (6) surveillance core graphs. Due to differences in malaria transmission in the country, the graphs for outpatient confirmed malaria cases and test positivity rates are disaggregated into the four malaria epidemiological zones. Tables showing County data for selected malaria indicators; percentage treated, number of malaria cases and epidemiological zones are also included.

In this quarter we managed to distribute Long Lasting nets in West Pokot County through World Vision. The mass net distribution will continue this year to other parts of the Country which are in the Endemic and Epidemic prone areas.

Case management trainings continued in this quarter to which was to complete our target for 2014; Four hundred and ninety two Public sector health workers were trained. Malaria microscopy trainings for malaria microscopy also continued at County level and were held in Mombasa and Nakuru for all Counties in Regions where a total of 40 Laboratory staff were trained around the training venues.

The second Malaria Forum was also held in the month of October in Nairobi County. There was representation from all the Counties and the malaria research community. It was an opportunity for the researchers to share the latest evidence with the Counties as well as the programme officers from the national level. This forum is held every 2 years so the next one is scheduled for the year 2016 and we do hope it will be as well attended, successful and enriching as this one was.

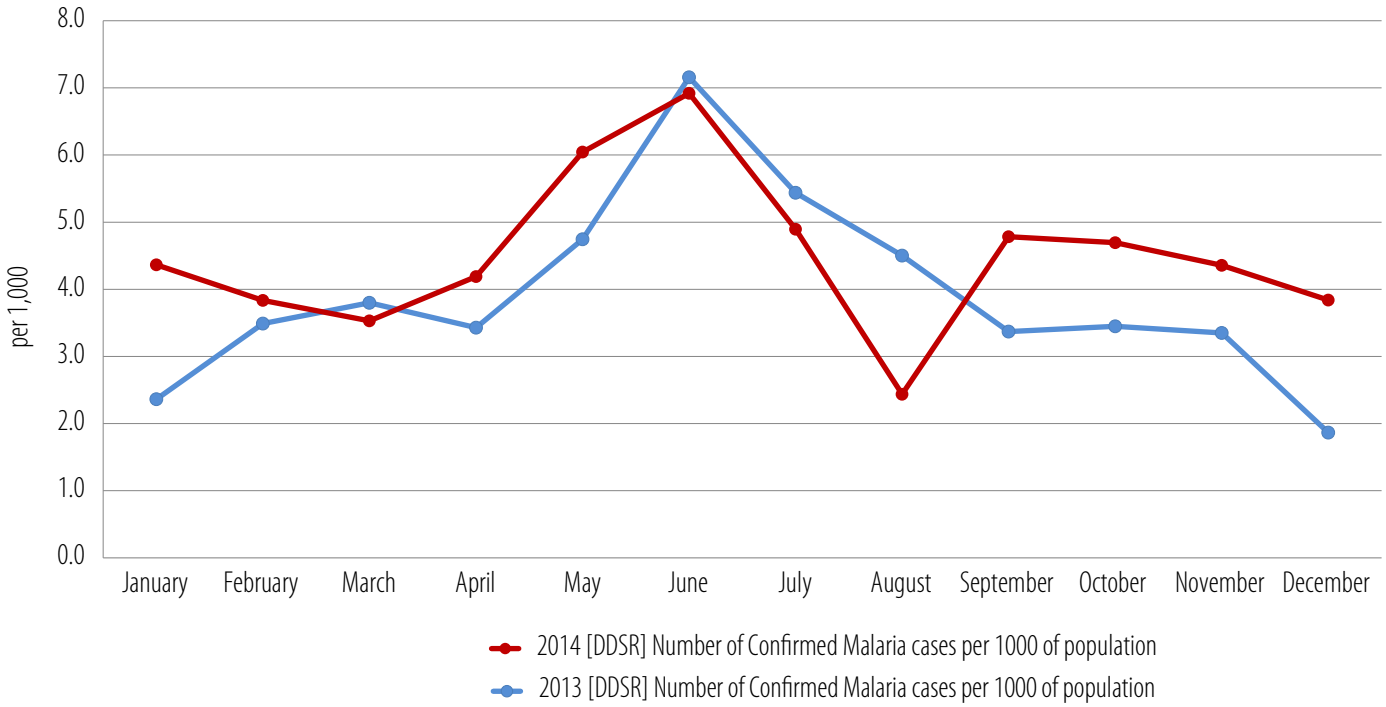
We do hope that you will use these bulletins to help you see the situation in your transmission area and Counties and thus help you make decisions. We encourage you to maintain high reporting rates (above 80%) so that as your data is representative of your County and also encourage you to also to do similar analysis with your surveillance and DHIS data at both the County and Sub-county levels.

OUTPATIENT CONFIRMED MALARIA CASES

Figure 1a shows the number of outpatient suspected malaria cases that are confirmed to have malaria parasite by microscopy or RDT per 1000 people resident in Kenya.

The outpatient confirmed malaria cases per 1,000 persons decreased from 4.7 in October to 3.8 in December 2014. This was higher than what was witnessed in the same period in 2013 i.e. 3.4 to 1.9. This can be attributed to the short rains witnessed in October and November last year in many parts of the country.

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



Source(s): DSRU, KNBS Projection 2009 Census

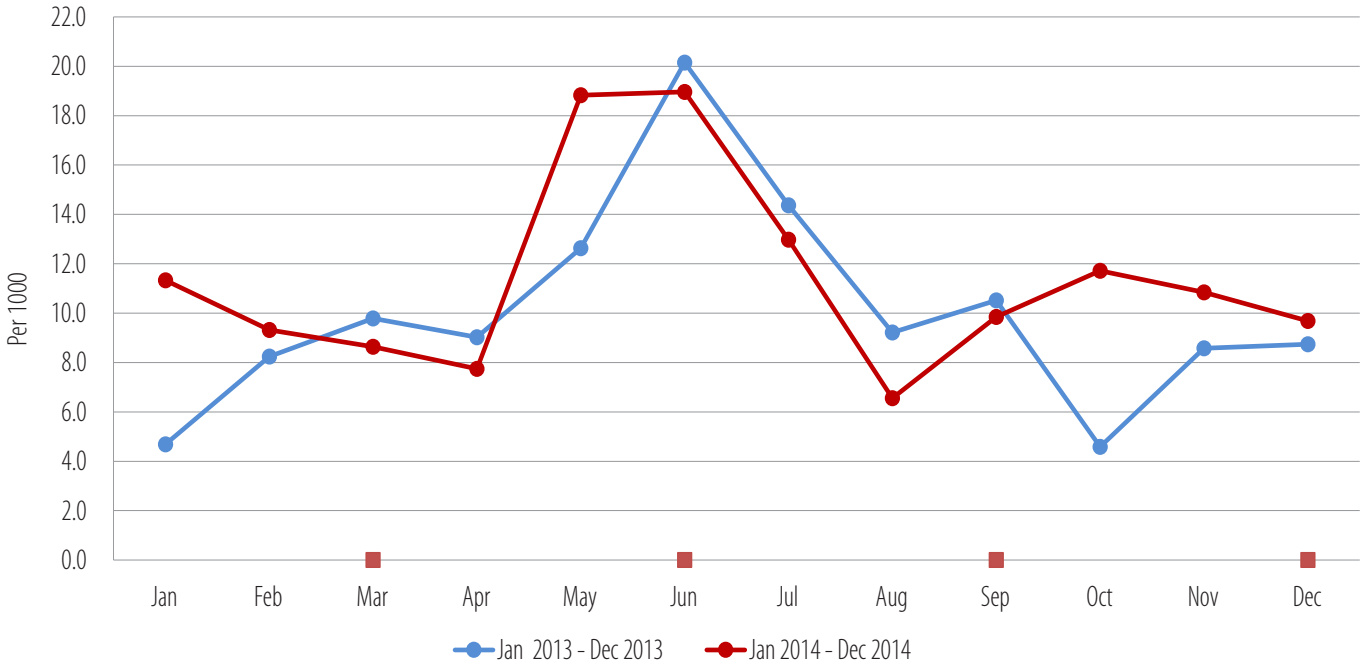
Figure 1b: Number of Outpatient Confirmed Malaria Cases per 1,000 of Population by epidemiology zones

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 the malaria epidemiological zones. Ideally, a rate of less than 1 case per 1000 people sustained over a 12-month period indicates readiness for the elimination phase.

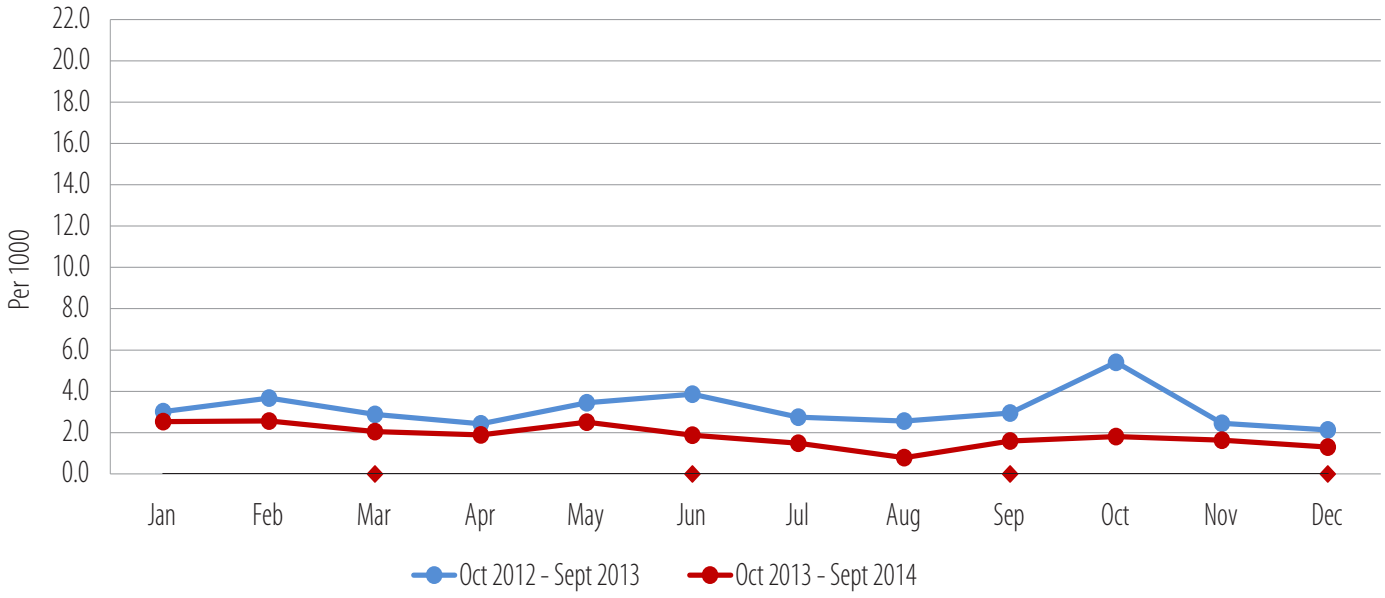
During the period October to December 2014, in Endemic zones a higher incidence of malaria was witnessed though with a steady decline towards December 2014 from 11.7 cases per thousand persons to 9.7 cases per thousand persons. During the same period in 2013, there was an increase in malaria incidence towards December 2013 from October 2013 i.e. 4.6 to 8.7 cases per 1000 people living in the endemic zone. For Highland epidemic prone zones the incidence of malaria fairly declined during the period October to December 2014 with a similar pattern witnessed during the same period in 2013 though with lower incidence rates. In the seasonal transmission zone, the malaria incidence declined marginally in the period Oct to Dec 2014 but was much higher in the same period in 2013.

In the low risk strata, malaria incidence was uniform across the three months (October to December 2014) at an average incidence of 1 malaria case per 1,000 persons of population. This mirrored the incidence witnessed in 2013 during the same period.

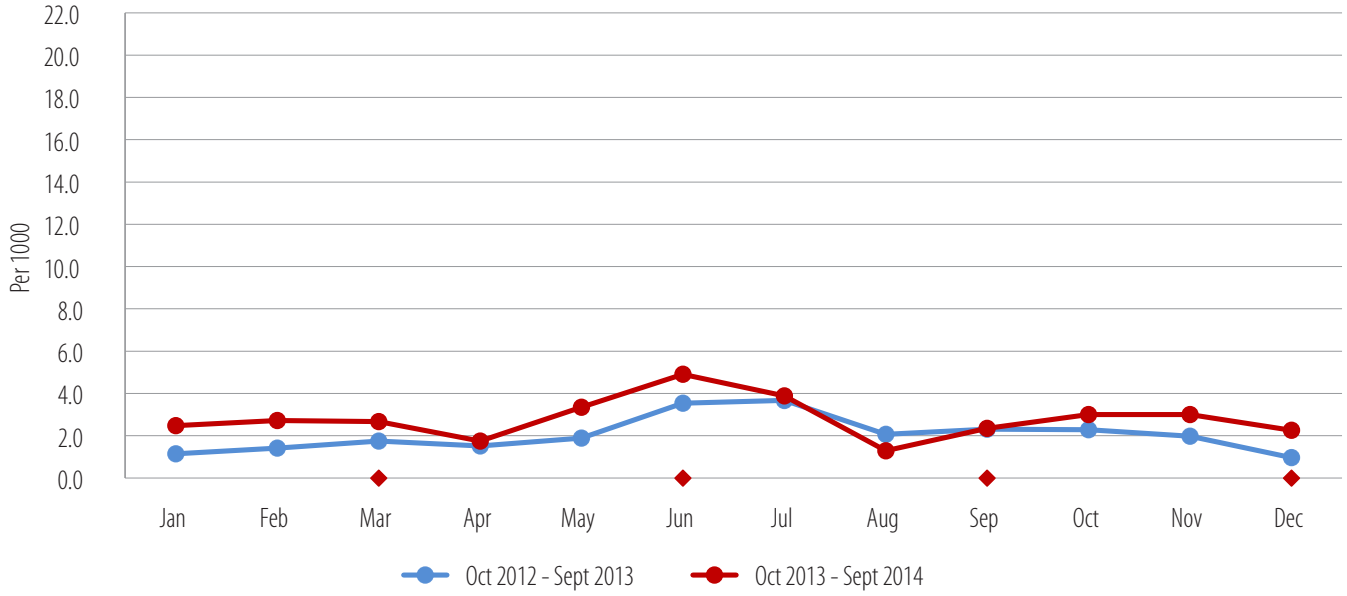
Endemic



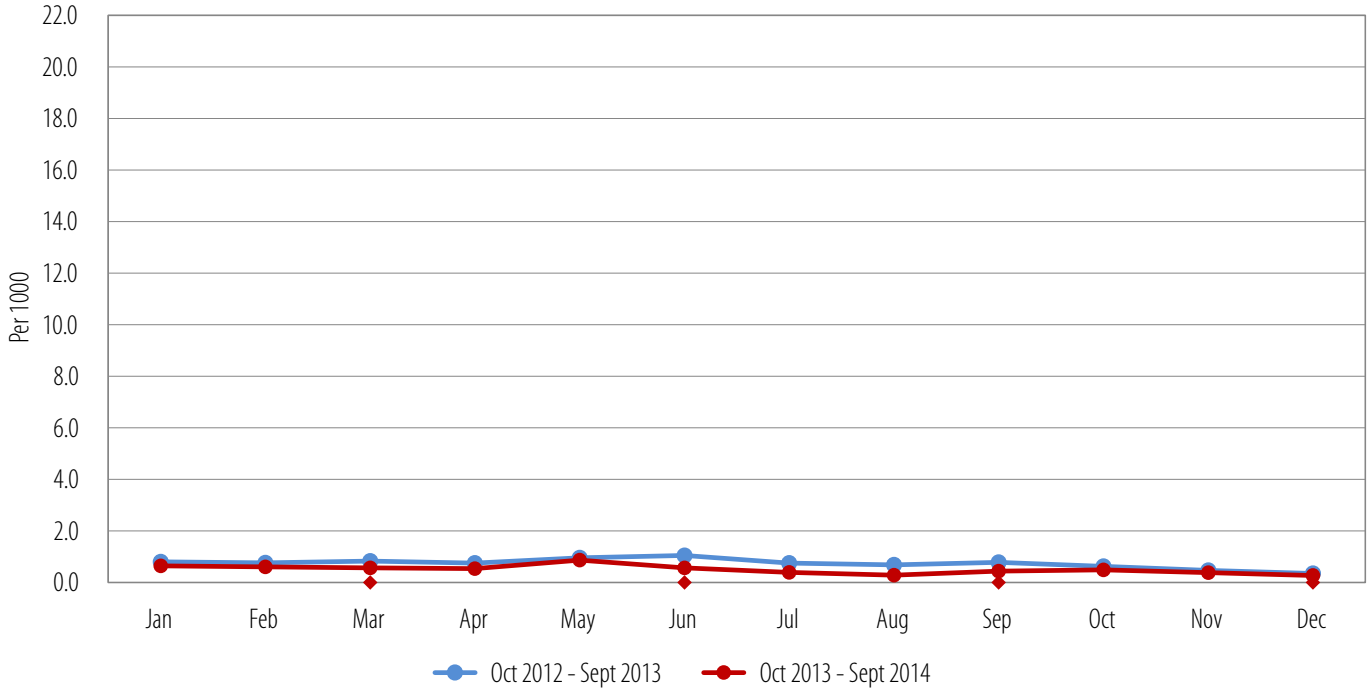
Seasonal Transmission Zone



Highland Epidemic Zone



Low Risk Malaria Zone



Source(s): DSRU, KNBS Projection 2009 Census

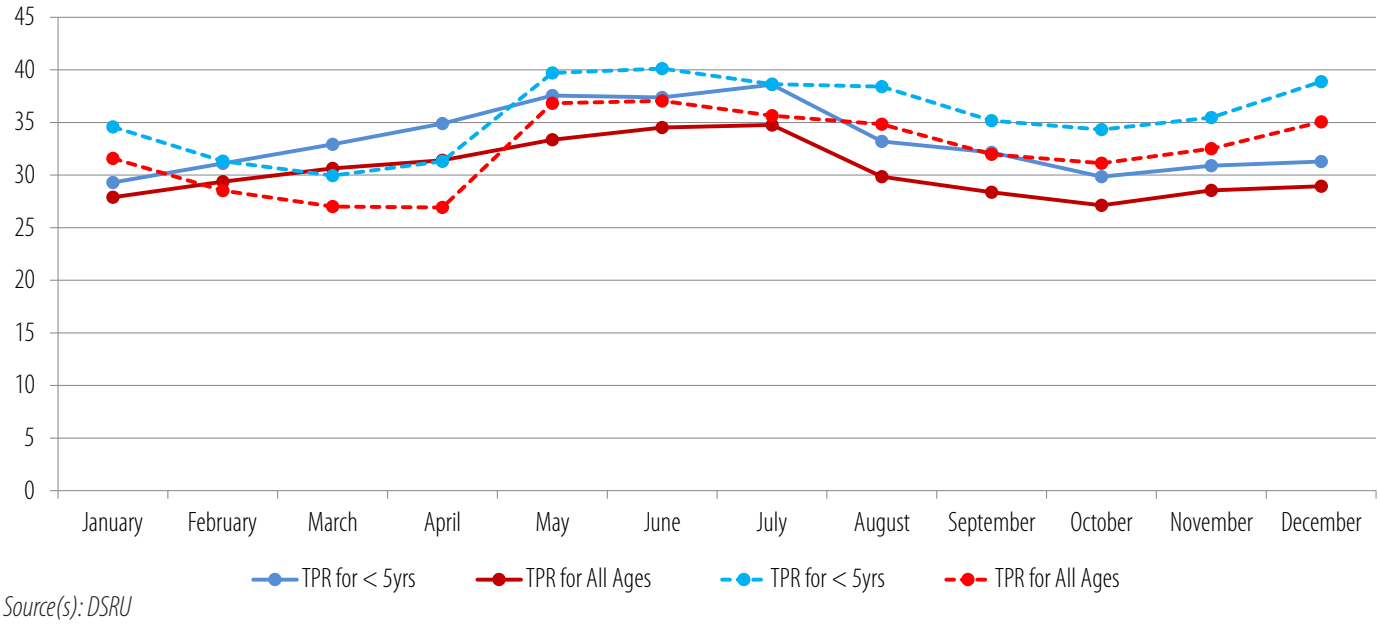
OUTPATIENT TEST POSITIVITY RATES AMONG THE UNDER 5 YEARS AND ALL AGES

Figure 2a presents the overall outpatient test positivity rates for the under fives and all ages in Kenya. In **Figure 2b** the outpatient test positivity rates for the under fives and all ages by the malaria epidemiological zones. The graphs are based on data from the weekly reports by the Diseases Surveillance and Response Unit (DSRU). These graphs show the trends with regard to the percentage of the malaria cases that tested positive against the total number of cases tested for parasites.

During the period October to December 2014, the number confirmed positive for malaria using a diagnostic test increased steadily for both cohorts of under 5 years (34% to 39%) and all ages (31% to 35%). This is attributed to the short rains witnessed in October and November 2014. The Malaria disease burden is higher among the under 5 year old.

Figure 2a: Outpatient TPR for < 5yrs and all ages

Figure 2b show outpatient TPR disaggregated by different epidemiological zones.



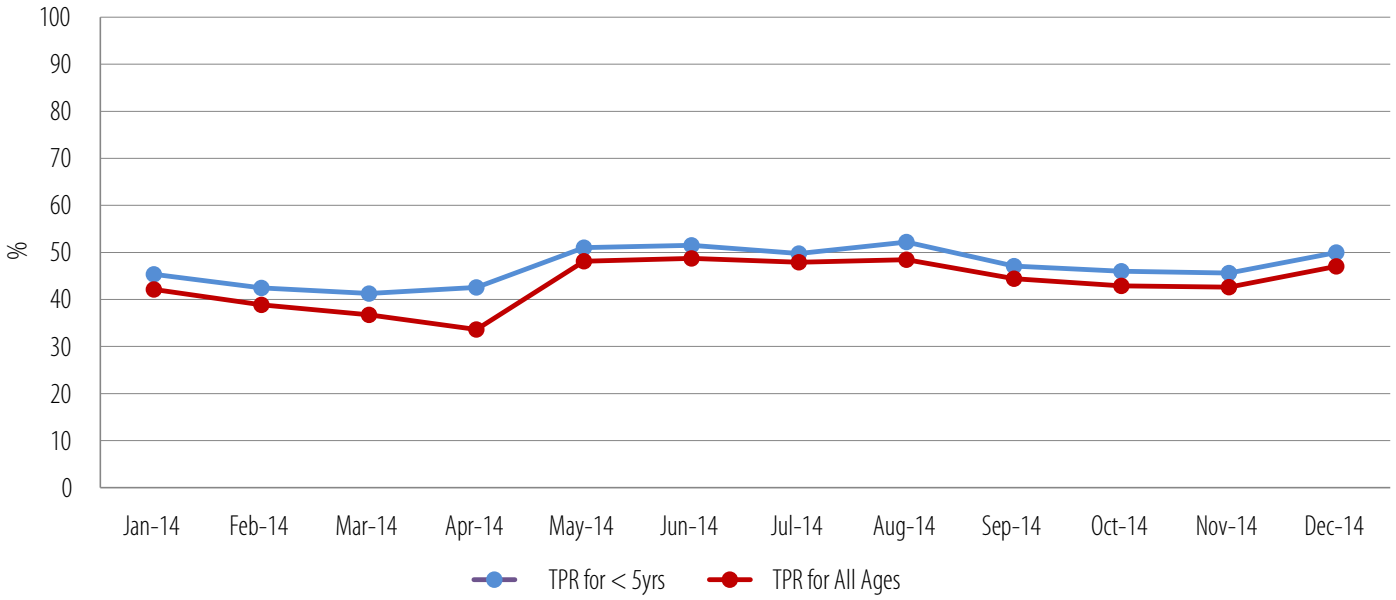
Source(s): DSRU

Figure 2b: Outpatient TPR for < 5yrs and all ages by malaria epidemiology zones

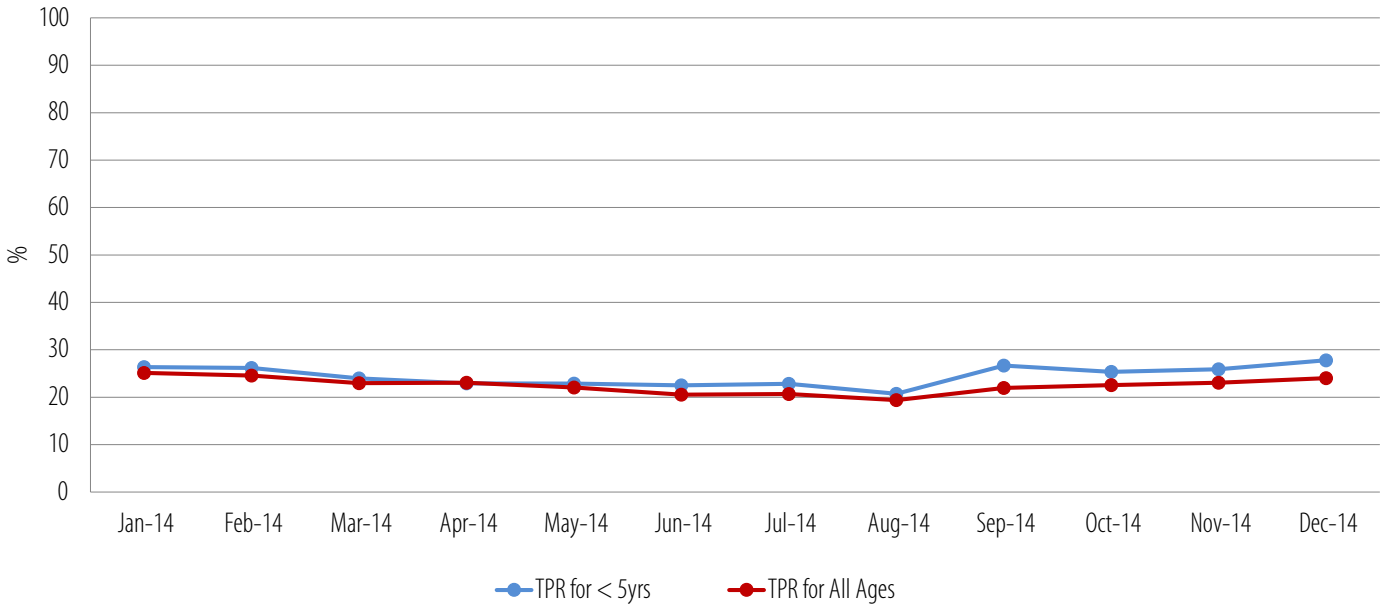
In the Endemic zone, malaria outpatient TPR increased for both under 5 years old (45% to 49%) and all ages (42% to 47%) from October to December 2014 respectively. A similar trend was witnessed in the Highland epidemic Zone and the Seasonal transmission zone (26% to 30% among the under 5 yrs and 23% to 27% among all ages in the Highland epidemic zone; and 25% to 27% among the under 5 yrs and 22% to 24% among all ages in the seasonal transmission zone) from October to December 2014 respectively.

In the Low Risk Malaria zone, the Malaria test positivity rates during the period October to December 2014 declined from 8% to 6% among the under 5 yrs and 8% to 7% among all ages respectively.

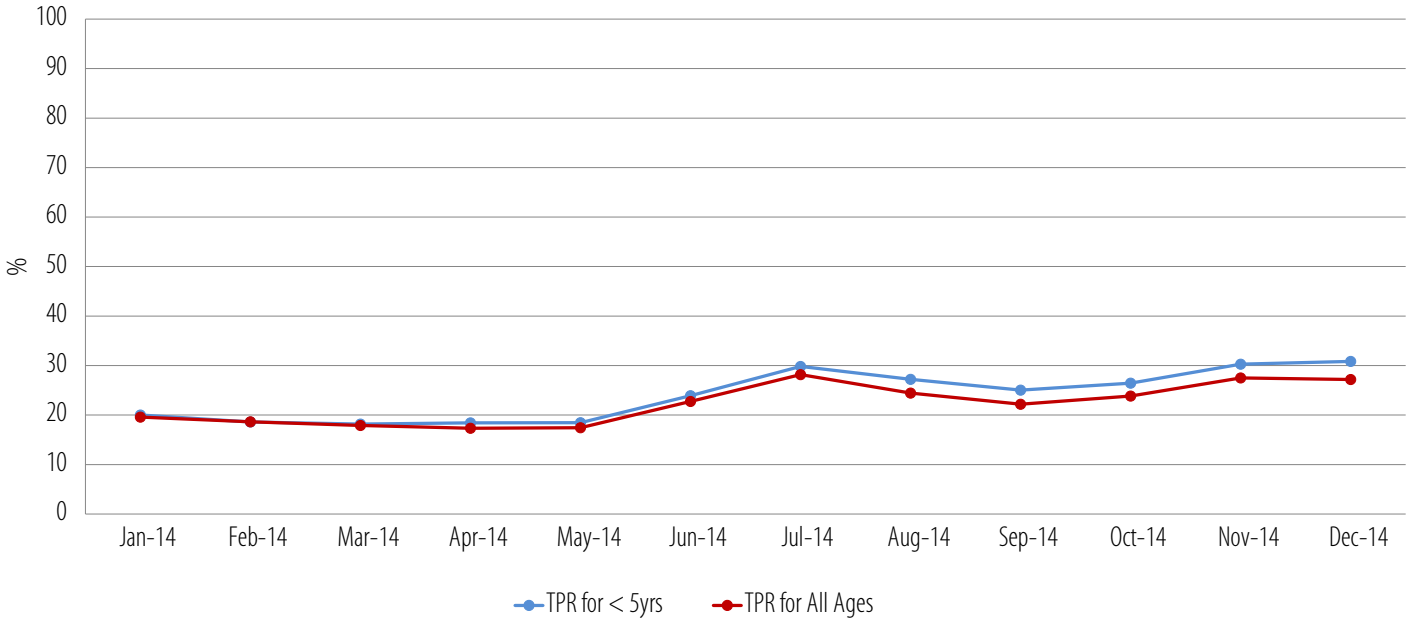
Endemic



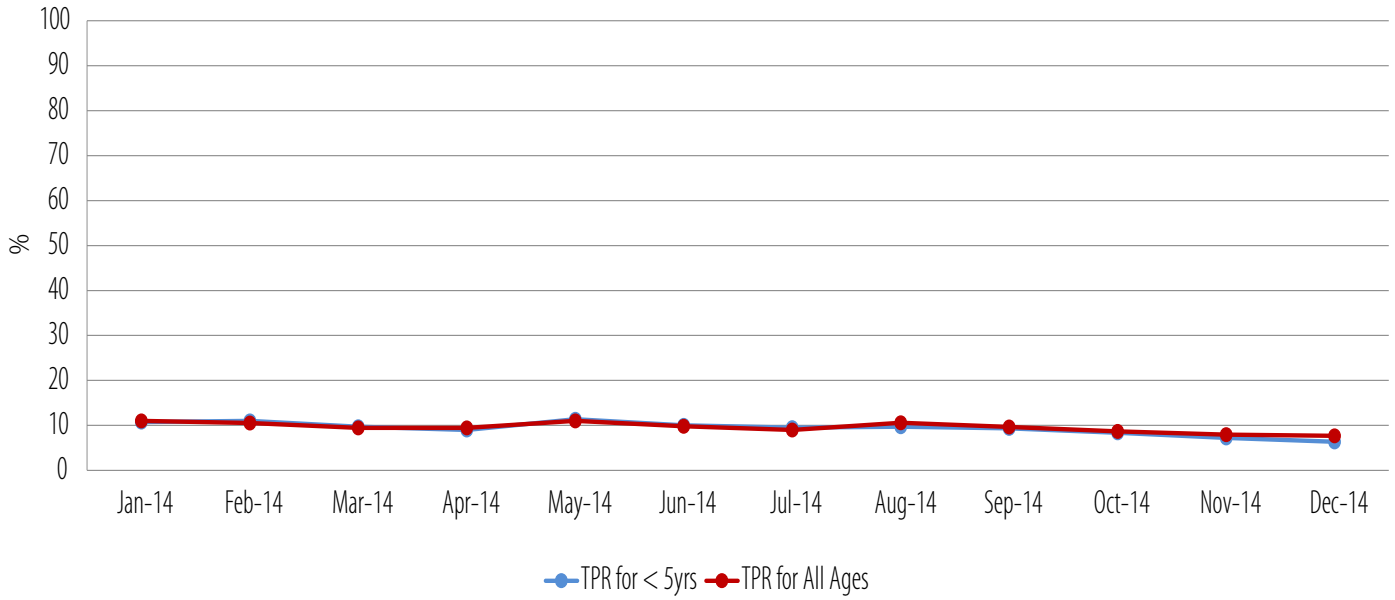
Seasonal Transmission Zone



Highland Epidemic Zone



Low Risk Malaria Zone



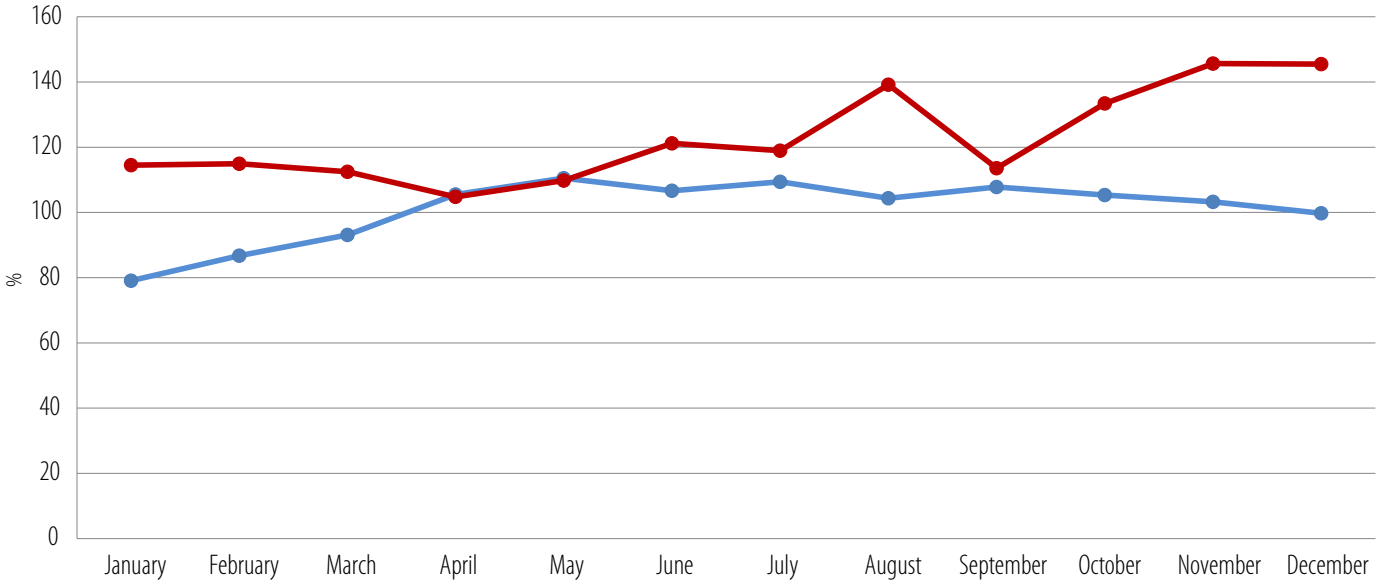
Source: DSRU

SUSPECTED MALARIA CASES TESTED WITH PARASITE-BASED TEST

The graph below depicts the percentage of the suspected malaria cases among the outpatients that underwent a laboratory diagnosis over the reporting period are presented.

There was an increase in the testing rate from 133% to 145% during the period October 2014 to December 2014. This is due to the increase in RDTs distributed across the country.

Figure 3: Percentage of Suspected Malaria Cases Tested with Parasite Based Test



Source(s): DSRU

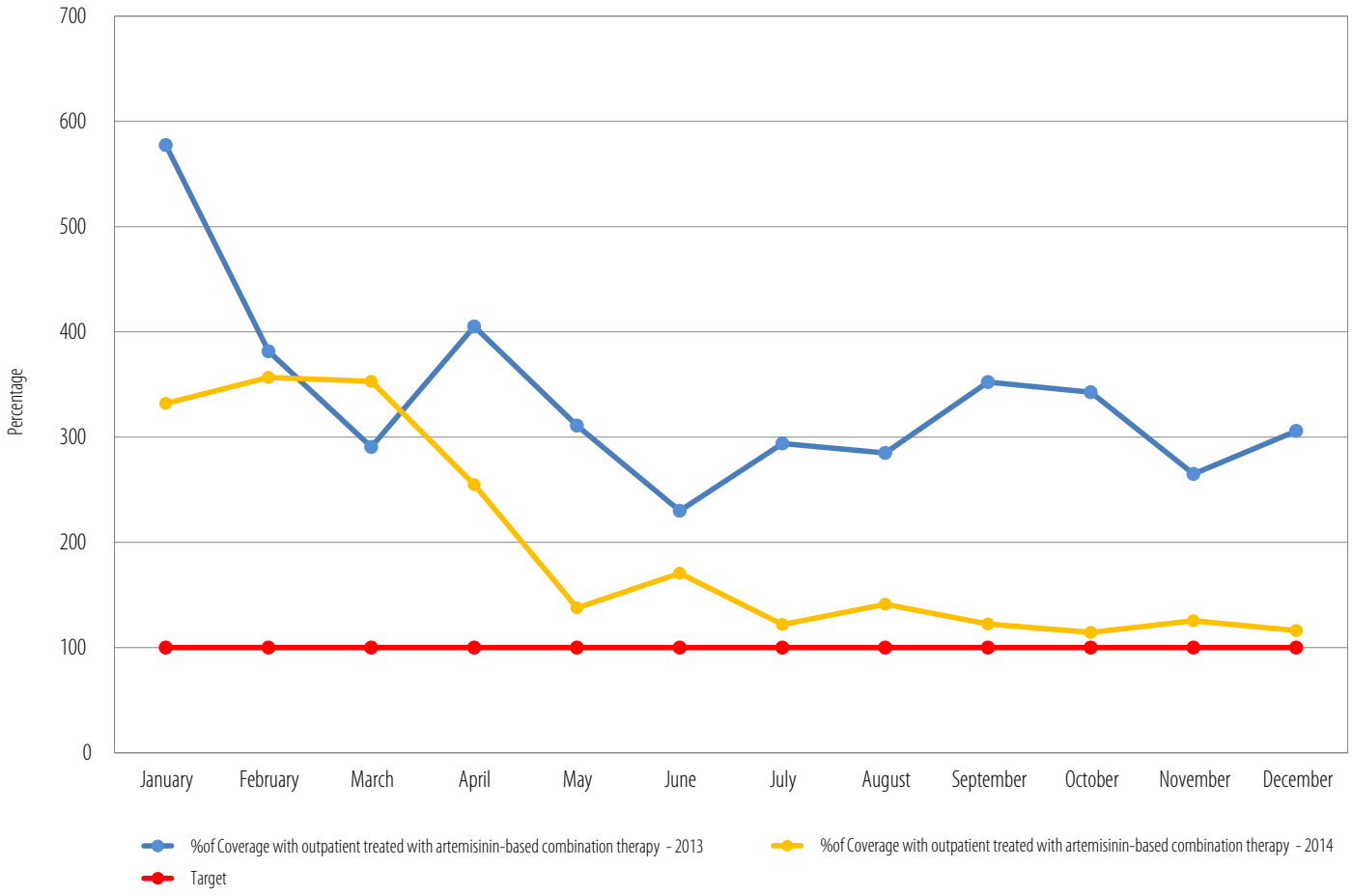
COVERAGE FOR OUTPATIENTS TREATED WITH ARTEMISININ-BASED COMBINATION THERAPY

Kenya has adopted the policy of testing suspected cases of malaria before treatment. The first line anti-malarial for uncomplicated malaria- AL, should only be administered to patients who are tested for malaria parasites using a parasite laboratory test, and the results are positive. The ability of health facilities to achieve this has in the past been hampered by low coverage of the rapid diagnostic test kits (RDTs) or microscopy.

Graph 4a shows the percentage of outpatient cases that were treated using artemisinin-based combination therapy over the number of confirmed malaria cases (positive parasitological results) expected to be treated with appropriate antimalarial medicines during the reporting period.

The graph below compares Confirmed malaria cases with the number of patients receiving AL doses. Good progress was witnessed in the year 2014 towards achieving 100% Test Treat and Track with the ratio of patients treated with ACTs compared to the confirmed malaria cases standing at 1.16 by the close of the year 2014. This can be attributed to the case management trainings conducted in both public and private sector.

Figure 4a: Outpatient cases treated with AL as a proportion of confirmed malaria cases

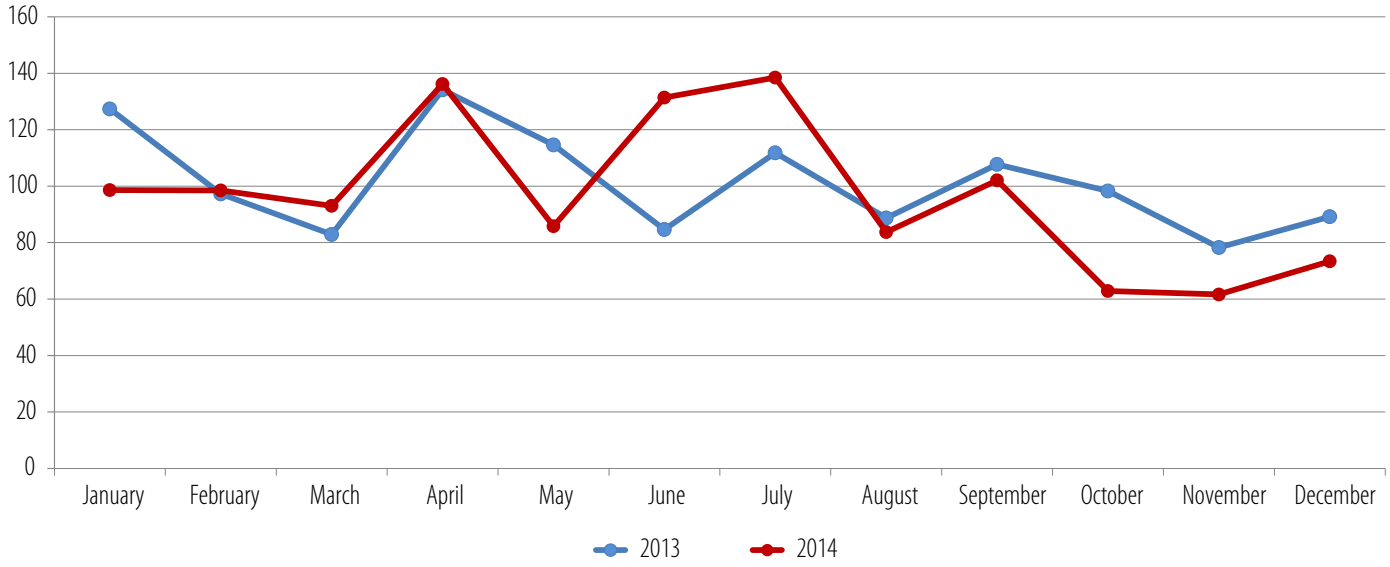


Source: LMIS/DHIS

Figure 4b shows the percentage of outpatient suspected malaria cases who received appropriate anti-malarial treatment (ACTs)

The suspected malaria cases that were treated with ACTs increased from 63% to 73% during the period October to December 2014. In the same period 2013, the suspected malaria cases that were treated with ACTs were slightly higher at 98% to 89% respectively

Figure 4b: Outpatient cases treated with AL as a proportion of suspected malaria cases



Source: LMIS/DHIS

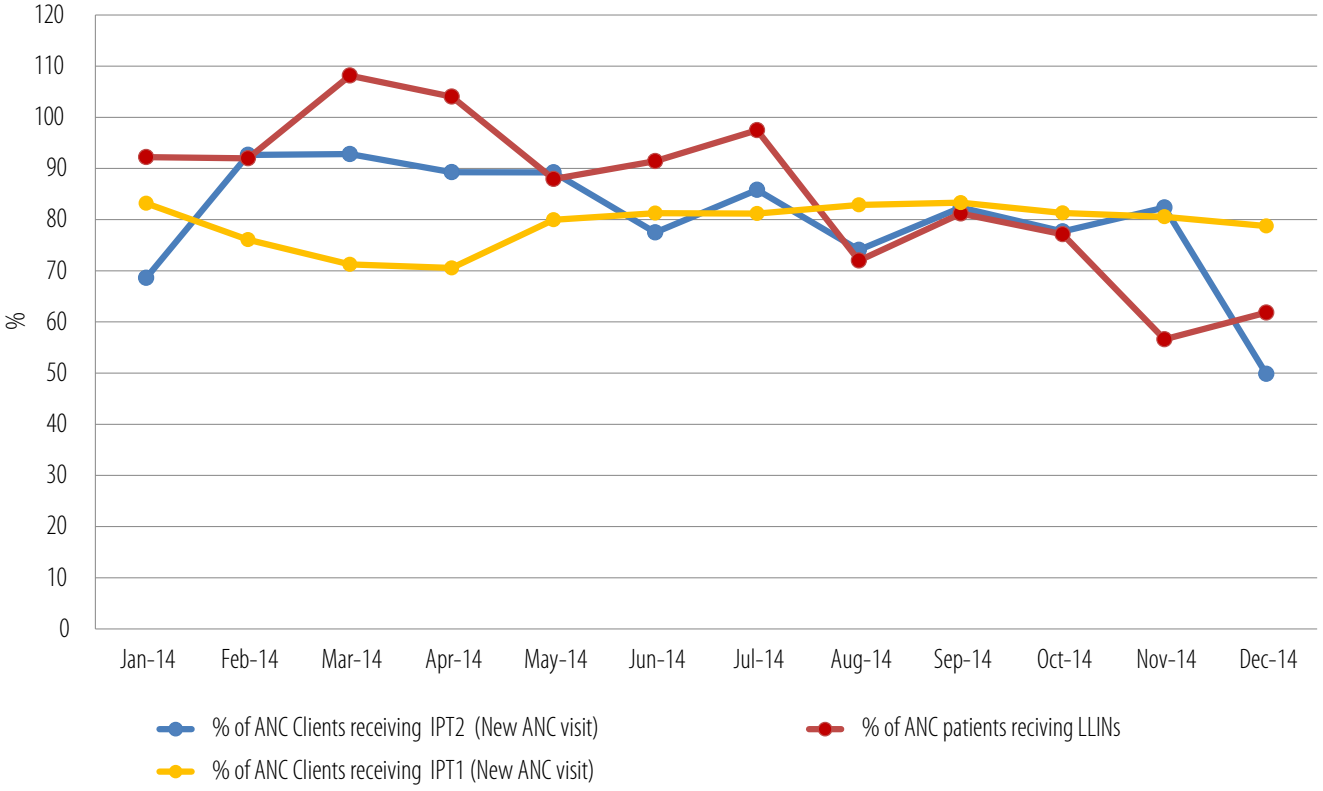
PERCENTAGE OF COVERAGE WITH OUTPATIENTS TREATED WITH ACTS AND NUMBER OF LLINS DISTRIBUTED AT ANC

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 at least two doses of intermittent preventive treatment (SP) for expectant mothers ($IPTp_2$) in Lake Endemic and Coast endemic counties. Provision of Long Lasting Insecticide Nets (LLINs) is part of the package in Epidemic prone and endemic counties.

The graph below depicts decline in all the three indicators i.e. ANC clients receiving LLINs, ANC clients receiving IPT 1 and ANC clients receiving IPT 2. Percentage of ANC clients receiving LLINs in endemic areas increased from 92% in October 2014 to 98% in December 2014.

The number of ANC clients receiving IPT1 reduced from 76% to 74% and those receiving IPT2 reduced from 75% to 67% from October 2014 to December 2014 respectively. In the last two quarters both IPT1 and IPT2 indicators did not meet the target of 80% as stated in the current Kenya Malaria Strategy. This could be attributed to stock-outs of SP at facility level. With devolution of health the endemic counties are expected to procure and distribute SP. Some counties have not procured this and thus experienced stocks outs during the period in question. Although there were some SP stocks in KEMSA, these could not be distributed due to their short expiry dates.

Figure 5: Percentage of Antenatal Care Clients Receiving Insecticide Treated Nets and at Least Two Doses of Intermittent Preventive Treatment (IPTp2) in Endemic area

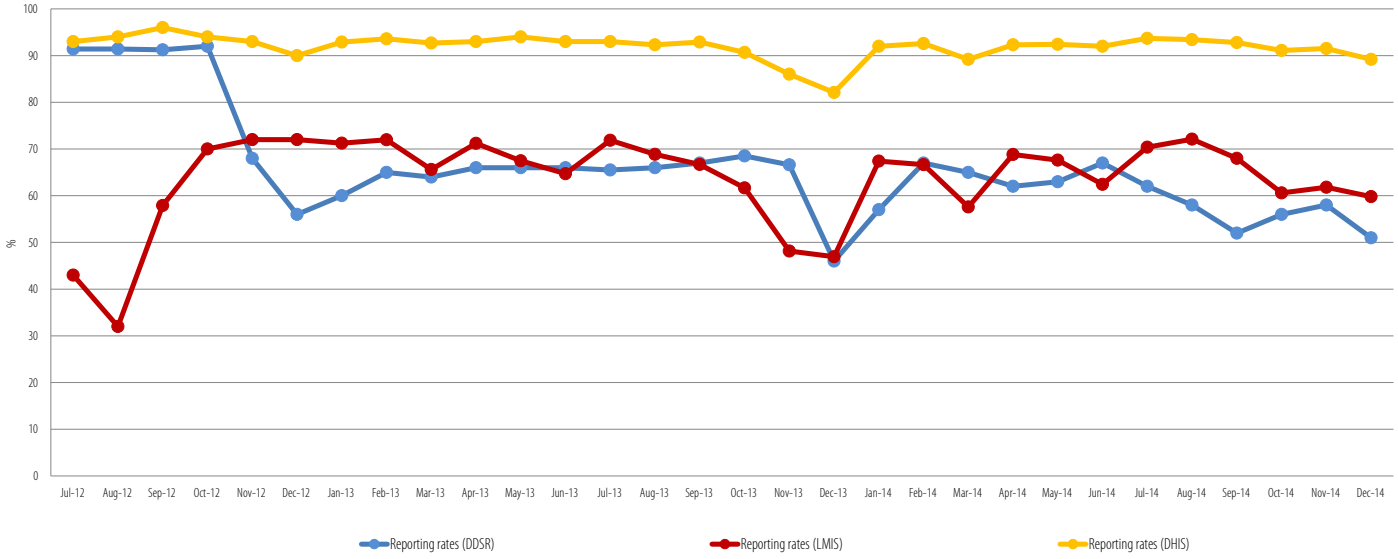


Source: DHIS

REPORTING RATES BY DATA SOURCES

The Malaria Control Unit (MCU) derives surveillance monitoring and evaluation (SM&E) data from various routine data reporting systems that includes the District Health Information Software (DHIS), electronic-Integrated Disease Surveillance and Response (IDSR), and the Logistics Management Information System (LMIS). The reporting rates presented in graph 6 are for DHIS, IDSR and LMIS and is derived from the number of health facilities that send in monthly reports against the number of health facilities expected to report each month. The e- IDSR data is an average of the weekly data that was reported during the reporting months.

Graph 6: Reporting rates



Source: DHIS/DSRU/LMIS

FROM THE COUNTIES

This section provides a general overview in terms of how the counties performed in data collection and reporting for selected malaria indicators as shown in Table 1 in the reporting quarter 2 of 2014/2015. Those with stars have either overtreated or undertreated out patients. We do emphasize that patients are to be tested before being treated wherever there is diagnotic capability.

The difference in the number of out patients confirmed malaria cases and the aggregated patients on AL could be due to irrational treatment of negative cases and the bundling of lower weight bands to treat older patients (eg combining four blister packs of the 6's to treat a patient heavier than 35Kg).

Table 1: Malaria treatment by county

Region	County	# outpatient suspected Malaria cases	# outpatient confirmed malaria cases	Aggregated patients on ACTs	# outpatient cases treated with ACTs as a proportion of confirmed Malaria cases	# outpatient cases treated with ACTs as a proportion of suspected Malaria cases	Reporting rate (%) of the malaria commodity form
Western	Bungoma*	107,712	78,995	133,968	170%	124%	87.9%
	Busia	92,715	66,817	68,750	103%	74%	89.6%
	Kakamega*	176,518	116,848	127,516	109%	72%	90.5%
	Vihiga*	65,614	24,117	74,160	308%	113%	90.4%
Nyanza	Homa Bay*	148,364	90,457	127,174	141%	86%	85.4%
	Kisii *	84,098	23,197	53,426	230%	64%	80.8%
	Kisumu*	120,910	83,441	96,297	115%	80%	79.0%
	Migori*	136,931	90,056	116,153	129%	85%	75.6%
	Nyamira*	16,747	4,769	13,546	284%	81%	92.3%
	Siaya*	130,547	98,162	116,335	119%	89%	88.7%
Rift Valley	Baringo**	31,108	5,422	14,659	270%	47%	57.2%
	Bomet**	10,181	1,190	4,731	398%	46%	45.3%
	Elgeyo/Marakwet**	7,831	3,898	1,712	44%	22%	41.3%
	Kajiado**	11,814	4,093	411	10%	3%	15.5%
	Kericho**	16,343	4,783	6,349	133%	39%	16.5%
	Laikipia**	3,378	662	1,363	206%	40%	42.2%
	Nakuru**	32,825	13,869	7,943	57%	24%	75.9%
	Nandi**	43,668	13,692	17,353	127%	40%	46.1%
	Narok**	22,761	4,234	6,315	149%	28%	21.6%
	Samburu**	2,270	1,814	1,734	96%	76%	49.0%
	Trans Nzoia**	36,563	21,027	8,674	41%	24%	44.0%
	Turkana**	59,933	42,235	57,874	137%	97%	49.7%
	Uasin Gishu*	33,265	11,953	9,134	76%	27%	60.5%
	West Pokot**	57,465	27,958	15,889	57%	28%	33.3%
Coast	Kilifi*	82,934	70,808	36,147	51%	44%	89.9%
	Kwale*	60,728	49,878	42,626	85%	70%	92.6%
	Lamu*	432	229	133	58%	31%	72.8%
	Mombasa*	34,545	18,421	2,564	14%	7%	74.6%
	TaitaTaveta*	5,276	2,011	1,868	93%	35%	90.5%
	Tana River**	4,782	2,836	111	4%	2%	10.1%

Region	County	# outpatient suspected Malaria cases	# outpatient confirmed malaria cases	Aggregated patients on ACTs	# outpatient cases treated with ACTs as a proportion of confirmed Malaria cases	# outpatient cases treated with ACTs as a proportion of suspected Malaria cases	Reporting rate (%) of the malaria commodity form
Eastern	Embu*	9,306	6,515	5,140	79%	55%	91.7%
	Isiolo*	4,933	2,865	959	33%	19%	63.0%
	Kitui**	17,132	8,008	5,952	74%	35%	52.1%
	Machakos*	4,951	1,971	595	30%	12%	62.4%
	Makueni*	13,854	2,236	8,143	364%	59%	91.6%
	Marsabit**	5,380	1,080	22	2%	0%	12.5%
	Meru**	35,133	22,119	5,161	23%	15%	57.0%
	Tharaka-Nithi**	23,413	10,289	7,106	69%	30%	42.6%
North Eastern	Garissa**	4,137	2,641	644	24%	16%	40.5%
	Mandera**	5,332	1,243	126	10%	2%	20.7%
	Wajir**	1,933	1,258	58	5%	3%	24.4%
Central	Kiambu**	5,168	2,286	164	7%	3%	41.2%
	Kirinyaga*	4,180	170	147	86%	4%	42.4%
	Murang'a**	633	80	238	298%	38%	36.7%
	Nyandarua*	1,395	869	657	76%	47%	94.2%
	Nyeri**	352	158	120	76%	34%	43.7%
Nairobi	Nairobi**	21,911	11,548	1,944	17%	9%	44.9%
Total	Kenya	1,797,401	1,053,208	1,202,091	114%	67%	60.4%

Source: DHIS

**Counties that are not adhering to malaria treatment guidelines.*

***Counties that have reporting rates below 60%*

Table 2: Reported Malaria Cases by Epidemiological zones

Zones	Quarter	No. cases <5 years	No. tested <5 years	Positive < 5 years	TPR for < 5 years	Total no. of cases all ages	Total no. tested all ages	Total no. positive all ages	TPR for all ages
Endemic	Qtr2 13/14	272,405	251,326	100,885	40	726,600	693,328	257,856	37
	Qtr3 13/14	391,639	316,392	136,519	43	1,096,294	895,943	352,747	39
	Qtr4 13/14	434,746	410,366	202,516	49	1,221,346	1,218,544	549,188	45
	Qtr1 14/15	240,212	252,084	124,465	49	725,643	756,474	353,968	47
	Qtr2 14/15	254003	313749	147444	47	708579	883199	388425	44
Seasonal Transmission	Qtr2 13/14	63,852	68,948	17,955	26	200,860	234,265	60,922	26
	Qtr3 13/14	84,014	92,022	23,511	26	260,618	303,710	73,717	24
	Qtr4 13/14	77,014	87,693	19,913	23	253,966	297,771	65,019	22
	Qtr1 14/15	43,427	54,563	13,027	24	143,011	190,548	39,792	21
	Qtr2 14/15	42007	64032	16776	26	129335	211282	48801	23
Highland Epidemic	Qtr2 13/14	96,071	81,773	15,176	19	280,483	247,585	42,520	17
	Qtr3 13/14	121,608	110,694	20,890	19	380,076	350,543	65,393	19
	Qtr4 13/14	108,988	111,595	27,740	25	360,578	354,549	83,130	23
	Qtr1 14/15	75,506	75,967	21,017	28	236,494	246,750	62,604	25
	Qtr2 14/15	66544	89820	25997	29	197301	264898	68790	26
Low Risk Malaria Areas	Qtr2 13/14	32,124	62,319	6,255	10	87,967	193,014	18,331	9
	Qtr3 13/14	30,342	72,815	7,622	10	86,205	228,897	23,630	10
	Qtr4 13/14	29,937	77,380	7,846	10	97,188	254,307	25,794	10
	Qtr1 14/15	17,242	46,514	4,415	9	55,544	151,601	14,574	10
	Qtr2 14/15	16877	55911	4177	7	53751	181942	14865	8

Source: DSRU