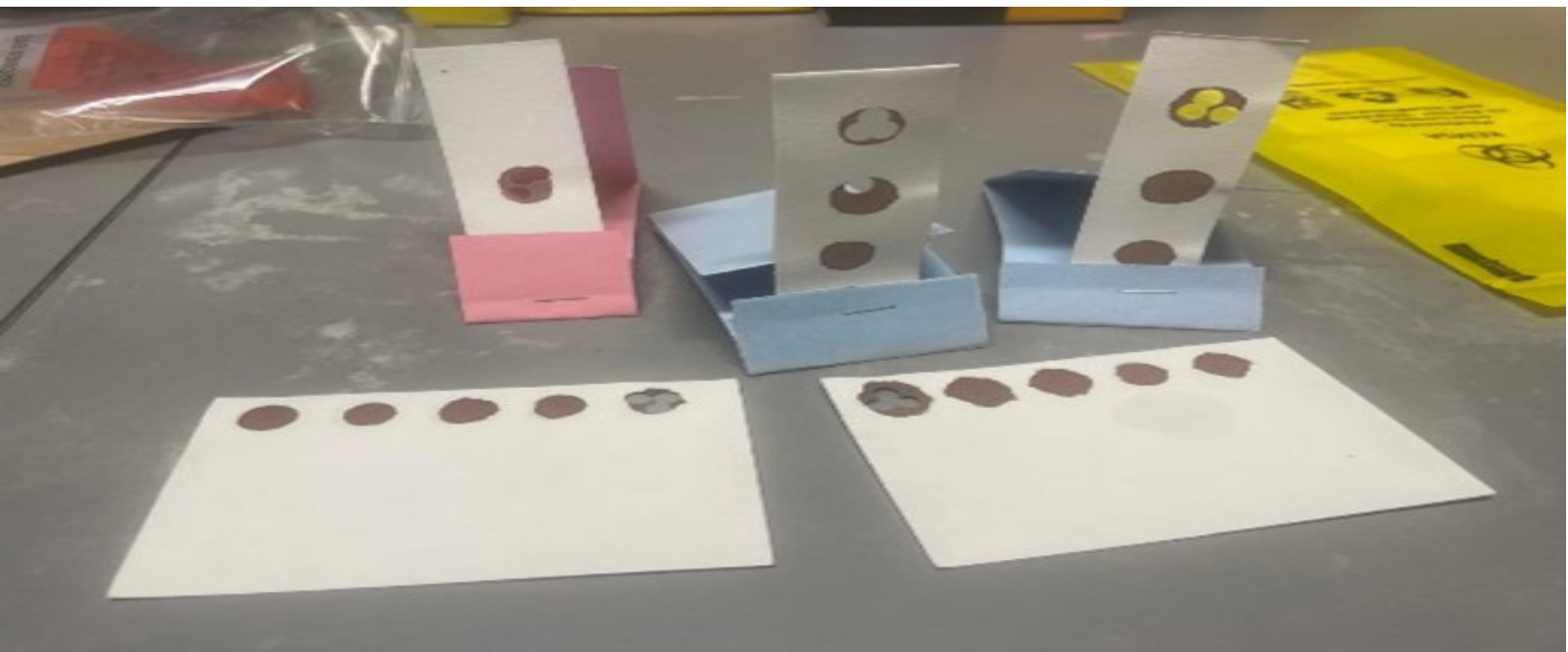


Confirmed presence of *Plasmodium vivax* infections in Kericho, Isiolo and Wajir counties



Key Points

- *Plasmodium vivax* was detected in 4 samples collected in 2024 in Wajir County.
- *Plasmodium vivax* was detected in 10 samples collected in 2025 from Kericho, Isiolo and Wajir counties.

Background

WHO estimated cases and deaths due to *P. vivax* was at 1.1% in the African Region of malaria related cases (246 million) and deaths (569,000). *Plasmodium vivax* is rare in most of sub-Saharan Africa, with stable, endemic transmission in the Horn of Africa (Ethiopia, Eritrea, Djibouti, Somalia and Sudan) and Madagascar (Abdelraheem et al., 2016; Guerra et al., 2010; Lo et al., 2011). In Ethiopia the pooled estimate of *P. vivax* prevalence rate was 8.93% (95% CI: 7.98–9.88%) with significant heterogeneity (Ketema et al., 2021). In DRC, a 2013/2014 DHS survey of ~17,000 adults revealed an infection prevalence of about 2.97% (95% CI: 2.28%, 3.65%) (Brazeau et al., 2021).

In 2019, in Turkana County, Northwestern Kenya *P. vivax* only infections ranging from 1-1.6% were observed and some were mixed infections (O'Meara et al., 2023). Under diagnosis is a concern since most of the focus in Kenya is on *P. falciparum* detection. More recently, in 2024, 2.7% of infections from a malaria outbreak in Marsabit County constituted *P. vivax* (Muguku et al., 2025). Given the detection of *Plasmodium vivax* infections beyond the characteristic zones of the Horn of Africa and Madagascar into countries such as Kenya (Muguku et al., 2025; O'Meara et al., 2023), monitoring *P. vivax* in these areas is important. Furthermore, given the introduction of *Anopheles stephensi* into Kenya about 3 years ago there is the potential of this vector species to transmit *P. vivax* (Ochomo et al., 2023).

Following the detection of *P. vivax* infections by microscopy, samples were shipped to the KEMRI-Wellcome Research Programme (KWRP), Malaria Molecular Epidemiology Research Group to confirm the samples by molecular PCR.

Findings

KWRP Malaria Molecular Epidemiology Research Group received 17 samples from the National Malaria Reference Laboratory in August 2024.

Of the 17 samples shared for the *P. falciparum* molecular confirmation, only 6 samples were positive. For the **P. vivax RT-PCR confirmation only 4 samples** of the 8 that were genotyped were positive (Table 1).

Table 1. *Plasmodium vivax* RT-PCR results from samples received August 2024

Date of sample collection	Region	Gender	Age	Ct	Results
07/03/2024	Jima village Wajir	M	3	27.863	Pv detected
04/02/2024	Adadihole, Bute ward, Wajir North	M	20	29.814	Pv detected
23/06/2024	Uran village, Bute ward, Wajir North	M	50	26.575	Pv detected
07/03/2024	Jima village, Wajir	F	9	28.882	Pv detected

45 cycle RT-PCR

In August 2025, another 52 samples were received from the National Malaria Reference Laboratory. Of the 52 samples genotyped for the molecular confirmation, 35 were positive for *P. falciparum*. Out of the 17 samples that were negative for *P. falciparum*, **10 were positive for the P. vivax** (Table 2). One sample from Kericho county was a late Ct which suggests low parasitemia, this result can be compared against any microscopy data available.

Table 2. *Plasmodium vivax* RT-PCR results from samples received August 2025

Sample	Region	Ct_value	Result
KER/MAL/11/04/25	Kericho	37.768	Potential Pv detected (confirm with microscopy results)
19012024	Isiolo	33.383	Pv detected
18012024	Isiolo	27.075	Pv detected
1565	Bute, Wajir	33.153	Pv detected
1378	Jima, Wajir	29.048	Pv detected
1376	Jima, Wajir	28.920	Pv detected
1584	Wajir	35.676	Pv detected
1405	Jima, Wajir	28.416	Pv detected
1422	Milsaded, Wajir	30.999	Pv detected
1445	Bute, Wajir	29.291	Pv detected

40 cycle RT-PCR

Recommendations

P. vivax was detected in Wajir County in 2024, in Bute ward, Wajir North sub-county region which borders Ethiopia. The following recommendations are made to increase surveillance and understand the extent of the *P. vivax* incidence in the region:

- Increase cross-border surveillance to determine the movement of people and carriage of *P. vivax* from Ethiopia into Kenya.
- Studies are required to determine if there is any local transmission.

The samples screened from 2025 show continued detection of *P. vivax* in Wajir North and detection of this parasite in Isiolo County and potentially in Kericho County from 1 positive sample. In addition to data that emerged from Turkana County in 2019, it is recommended that:

- Surveillance for *P. vivax* infections at health facilities continue in the Northern region of Kenya from Turkana to Mandera counties to determine the extent of local transmission if any.
- Studies be conducted to determine if there is any link between the introduction of *Anopheles stephensi* and *P. vivax* transmission.
- Training be provided to health facilities in this region on the detection of *P. vivax* by microscopy and introduce a Pf/Pan RDT. The pan RDT detects pan-plasmodial lactate dehydrogenase (pLDH), antigen that occurs across all human *Plasmodium* species (pan-*Plasmodium*).
- Guidelines and training should be provided to health facilities in the Northern Kenya region on the treatment and management of *P. vivax*.
- Procurement of *P. vivax* medications to treat the infections as well as the liver stage infection that can cause recurrent infections.

References

- Abdelraheem, M. H., Albsheer, M. M. A., et al (2016). Transmission of *Plasmodium vivax* in Duffy-negative individuals in central Sudan. *Transactions of the Royal Society of Tropical Medicine and Hygiene*, 110(4), 258–260.
- Brazeau, N. F., Mitchell, C. L., et al (2021). The epidemiology of *Plasmodium vivax* among adults in the Democratic Republic of the Congo. *Nature Communications*, 12(1).
- Guerra, C. A., Howes, et al (2010). The international limits and population at risk of *Plasmodium vivax* transmission in 2009. *Plos Neglected Tropical Diseases*, 4(8), e774–e774.
- Ketema, T., Bacha, K., et al. (2021). *Plasmodium vivax* epidemiology in Ethiopia 2000-2020: A systematic review and meta-analysis. *PLoS Neglected Tropical Diseases*, 15(9).
- Lo, E., Yewhalaw, D., et al (2011). Molecular epidemiology of *Plasmodium vivax* and *Plasmodium falciparum* malaria among Duffy-positive and Duffy-negative populations in Ethiopia.
- Muguku, P. W., Odhiambo, et al. (2025). Characterization of Malaria Outbreak in Marsabit County, Kenya, March 2024. *American Journal of Tropical Medicine and Hygiene*, 113(1), 49–56.
- O'Meara, W. P., Maraga, L., et al. (2023). *Plasmodium vivax* Prevalence in Semiarid Region of Northern Kenya, 2019. *Emerging Infectious Diseases*, 29(11), 2385.
- Ochomo, E. O., Milanoi, S., et al (2023). Detection of *Anopheles stephensi* Mosquitoes by Molecular Surveillance, Kenya. *Emerging Infectious Diseases*, 29(12), 2498–2508.