



Spatial Distribution of Malaria and its associated factors across the districts of Central Ethiopia Region, 2025.

Background

- Malaria is a leading cause of illness and death in many developing countries.
- Globally, it results in about 250 million in cases and 600,000 deaths annually.
- An estimated 263 million cases and 597, 000 deaths of malaria were reported worldwide in 2023.
- Towards the end of 2021, malaria started to resurge in Ethiopia causing outbreaks in the majority of regions since 2022.
- Compared to 2021 (1.3 million), the number of confirmed cases of malaria grew by more than two folds in 2022 (3.3 million) and more than three folds in 2023 (4.1 million).
- By stepping up its current malaria control measures, Ethiopia hopes to eliminate the disease by 2030.
- To accomplish this goal, it is essential to map high-risk locations, and understand the distribution of malaria by time.
- Therefore, this study is aimed to assess spatial distribution and associated factors of malaria incidence in central Ethiopia region.

Key Findings

- The trend of regional API was increasing with mean regional API of 43.07 cases/1000 population at risk.
- The regional API was 5 times higher (82.23% increment) in 2024/2025 than 2022/2023(**Figure 1**).

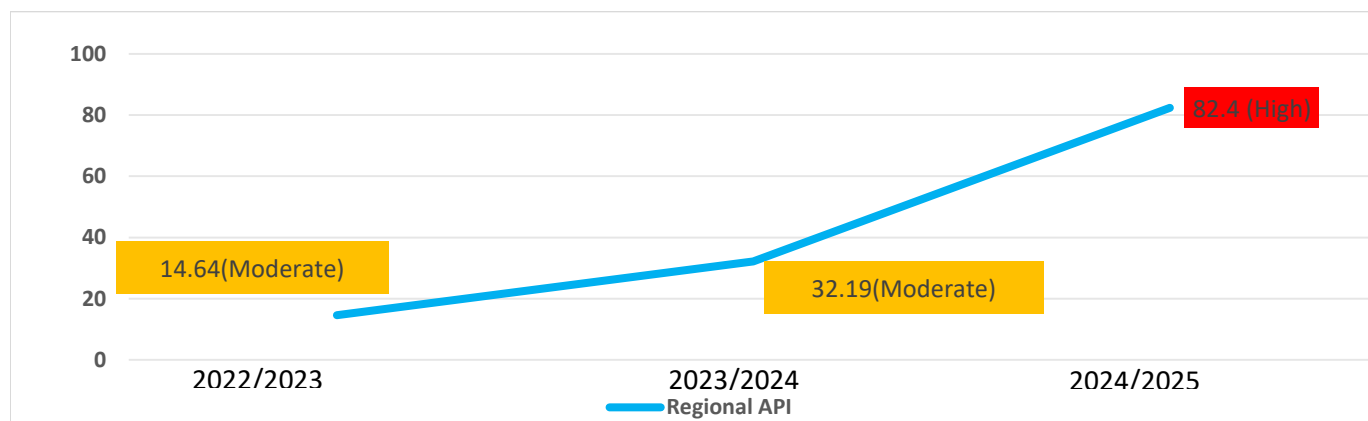


Figure 1: Trend of Regional API in CER from July 8, 2022-July 7, 2025, August 2025.

- More than half of the districts had a high malaria risk in 2022/2023 and 2024/2025.
- Between 2022/2023 and 2023/2024, the number of districts with high transmission intensity dropped by 50%, but in 2024/2025 it increased by 55.11 % (**Table1**).

Malaria endemicity	Number of structures		
	2022/2023	2023/2024	2024/2025
High	44	22	49
Moderate	16	37	22
Low	3	7	7
Very low	4	12	4
Free	1	0	0

Table 1: Malaria stratification in CER from July 8, 2022-July 7, 2025, August 2025.

- Districts with high-high incidence were clustered in North West, Southern, and Eastern parts of the region (**Figure 2**).
- A hotspot area with high-rate clusters was observed in Wolkite, Dalocha, Sankura, Lanfura, Wera, Misrak Silti, Adilo, Tora, and Kulito town as shown in red and yellow on the map (**Figure 3**).

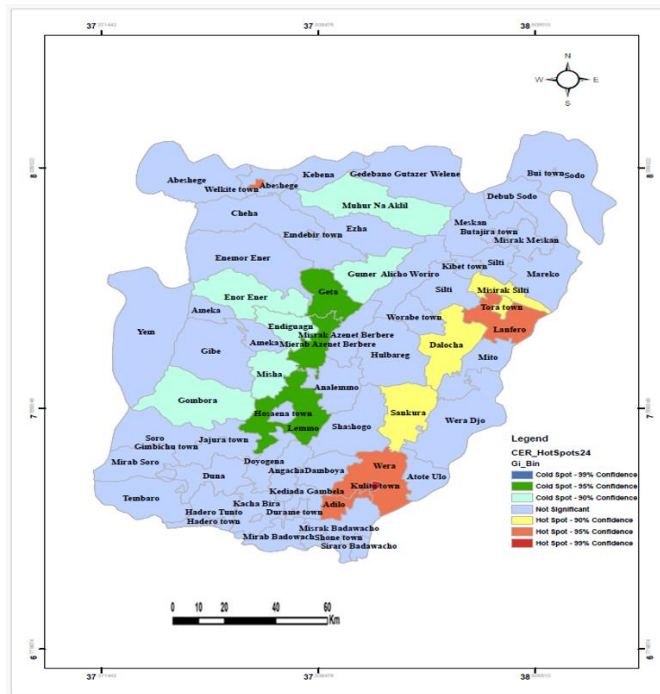


Figure 3: Hot spot area identification based on average annual malaria incidence in Central Ethiopia region between 2022/2023 and 2024/2025, August 2025.

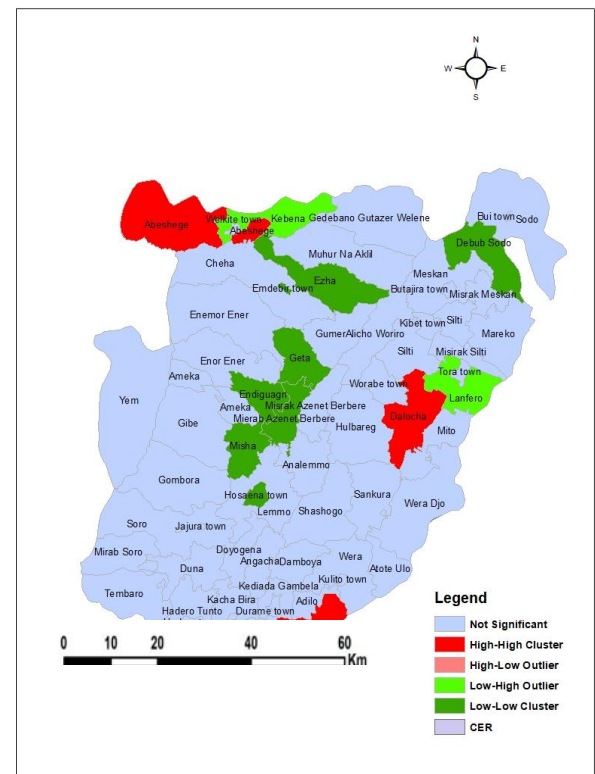


Figure 2: Spatial clusters of average annual malaria incidence in CER from July 8, 2022-July 7, 2025, August 2025.



Conclusion and Recommendation

- Increasing trend was observed in malaria incidence from July 8, 2022-July 7, 2025.
 - More than half of the structures had high malaria risk.
 - There was spatial variation in malaria incidence across the districts. Significant spatial clustering was observed across the districts of the region.
 - Increasing the coverage of integrated malaria prevention and control strategies is warranted.
 - Further studies are warranted to identify the factors of malaria at high risk areas considering additional environmental factors.
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