

A Response to the Article “A Retrospective Study on the Burden of Malaria in Northeastern Ethiopia from 2015 to 2020: Implications for Pandemic Preparedness” [Letter]

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Dear editor

Malaria is a disease transmitted by the bite of a female mosquito that contains parasites from the protozoa group, namely *Plasmodium*. In general, the type of mosquito that is a vector of malaria is from the genus *Anopheles*.¹ There are five *Plasmodium*-specific species that can infect humans such as *Plasmodium falciparum*, *Plasmodium vivax*, *Plasmodium ovale*, *Plasmodium malariae*, and *Plasmodium knowlesi*.² The importance of malaria research in endemic areas is to reduce the number of malaria cases according to the WHO target in 2030, namely a 90% reduction in global malaria incidence rates and mortality rates by 2030 which will probably require new approaches, new tools, and more effective implementation to all health services, including for the prevention, diagnosis, and treatment of malaria.³

The study performed by Daba et al was read and reviewed by our research group. We are grateful to the authors of this original research work. However, a number of the discussion presented here may be useful in their future research. Daba et al's study was performed in order to investigate the trend of malaria prevalence in Northeastern Ethiopia from 2015 to 2020.⁴ It is an important report to characterize *Plasmodium* in that area to support prevention activity against malaria infection which is a significant public health problem. *Plasmodium* was identified in this study based on microscopic technique. The microscopy technique of stained blood smears remains the standard method of malaria diagnosis in most malaria-endemic areas, and it ideally allows species distinction. However, this technique has been reported difficult in differentiating immature ring-stage parasites, and frequent misdiagnoses documented in *P. falciparum* and *P. vivax* co-endemic locations. As we know misdiagnosis of *P. falciparum*, and vice versa, is common, potentially leading to inappropriate treatment field.⁵ Confirmation with Polymerase Chain Reaction (PCR) technique for accurate surveillance in this study is needed. Given the inaccuracies of microscopic diagnosis, the performance of PCR is also essential to maintain accurate surveillance, particularly in monitoring the emergence of *P. falciparum* in Northeastern Ethiopia.

One Health is a collaborative, multi-sectoral, trans-disciplinary approach with the goal of achieving optimal health outcomes by recognizing the interconnection between people, animals, plants, and the environment and determining how this relates to the control of infectious diseases such as malaria, schistosomiasis, and so on. *Plasmodium* parasites, the aetiological cause of malaria in humans, can also infect non-human primates (NHP), raising the possibility of zoonotic transmission and related worldwide public health problems.⁶ In a future study, the identification of *Plasmodium* in NHP from the Northeastern Ethiopia region could be performed to support one health program. Because of the similarities between human and NHP hosts, as well as human and simian *Plasmodium* parasites, NHP models are preferred by the

biomedical research community for human malaria. An additional response for an interesting study is a characterization of its pathogen compared to NHP was suggested to be performed in future research, such as that performed in a previous study.⁷

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