

Contents lists available at ScienceDirect

New Microbes and New Infections



journal homepage: www.journals.elsevier.com/new-microbes-and-new-infections

Letter to the Editor

What are the challenges and the possible solutions to fight Malaria in the Democratic Republic of Congo?

ARTICLE INFO

Handling Editor: Patricia Schlagenhauf Keywords Democratic Republic of the Congo Malaria Infectious disease Global health Public health

Dear Editor,

In DR Congo, a country where the health system is paralyzed by numerous potentially epidemic diseases, its healthcare system is confronted with malaria which causes a very high number of cases of deaths among people vulnerable to malaria [1]. This high frequency of deaths is caused by the presence of the *Plasmodium falciparum* parasite throughout the national territory of the country and is the cause of serious forms and complications of malaria in DR Congo [2] (see Fig. 1).

On the road to malaria elimination, the DR Congo's healthcare system which is poorly equipped with healthcare equipment, is unable to provide effective care to the malaria vulnerable people. While progress in the fight against malaria depends on the strength of the healthcare system, the level of investment in malaria elimination strategies and other factors, such as environmental determinants as well as the social, demographic, and economic realities of the country [3].

In DR Congo, about 30% of its population lives within 5 km of healthcare facilities while 70% do not have access to health care due to geographic and economic barriers in the country [4]. This shows a concentration of healthcare facilities in high economic income sites compared to low-income areas, resulting in a failure to fill these gaps in the provision of malaria control services. To put an end to the high morbidity and mortality rate of Malaria in DR Congo, the Congolese government should seek public health partners to strengthen its healthcare facilities and equipment in order to provide access to eliminate the

associated risk factors of malaria, strengthening malaria healthcare, especially the primary healthcare centers, for the entire population and ensuring the health security of its population, as well as educating the Congolese population about the complications of malaria. It is also important for the Congolese government to also stimulate investment in the development and deployment of a new generation of malaria control tools and equipment to meet the global malaria targets for 2030. Several new malaria vector control tools and technologies have been submitted to the World Health Organization. If these tools are found to be effective in combating the disease [5], the Congolese government and its Ministry of Public Health should make new recommendations to support malaria control reform. As vector control is an essential component of strategies to combat and eliminate malaria, this should be a priority for the Congolese government because it prevents malaria infection and reduces its transmission. The use of insecticide-treated nets, spraying of insecticides, proper drainage system, and cutting down the bushes, against mosquitoes have been known as the main elements in vector control. Measures should be continued to prevent a recurrence of transmission in DR Congo but, also, the Congolese government should strengthen the improvement of malaria surveillance by mobilizing a medical team to carry out the continuous and systematic collection, analysis and interpretation of malaria data, as well as implementation research on malaria, and the One Health approach in preventing malaria.

https://doi.org/10.1016/j.nmni.2023.101160 Received 27 April 2023; Received in revised form 8 June 2023; Accepted 13 June 2023 Article published online: 14 June 2023 2052-2975/© 2023 The Authors. Published by Elsevier Ltd. This is an open access article under the CC BY-NC-ND license (http://creativecommons.org/licenses/bync-nd/4.0/).

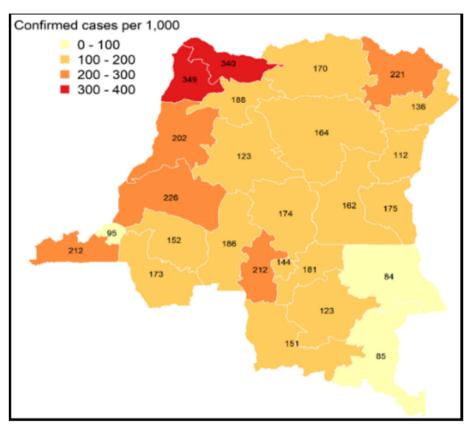


Fig. 1. Distribution of malaria cases by provinces in DR Congo [5]. **Source:** Programme National de lutte contre le Paludisme. Plan Strategique National de lutte contre le Paludisme 2020–2023.

Ethics approval and consent to participle

Not applicable.

Consent for publication

Not applicable.

Funding

The authors did not receive any financial support for this work.

Authors' contribution

Conception: Aymar AKILIMALI and Rodrigue Fikiri BAVURHE, Funding Acquisition: Olivier NYAKIO, Supervision: Olivier NYAKIO, Investigation: Rodrigue Fikiri BAVURHE and Fabrice KIBUKILA, Project administration: Aymar AKILIMALI, Validation: Olivier NYAKIO, Visualisation: Malik Olatunde ODUOYE and Bonk MUHOZA, Software: Rodrigue Fikiri BAVURHE, Chrispin BIAMBA and Hugues CAKWIRA, Manuscript preparation: Bonk MUHOZA, Ricardo Bisimwa RUSENYI, Alain BALUME, Rodrigue Fikiri BAVURHE and Malik Olatunde ODUOYE, Manuscript editing: Bonk MUHOZA, Gaston MASIMANGO, Rodrigue Fikiri BAVURHE and Hugues CAKWIRA, Manuscript review: All authors, Final approval of manuscript: All Authors.

Declaration of competing interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

Acknowledgment

The authors would like to gratefully acknowledge the staff of Medical Research Circle for excellent technical support.

References

- [1] Ntamabyaliro NY, Burri C, Lula YN, Ishoso D, Engo AB, Ngale MA, et al. Knowledge of antimalarials and health seeking behaviour of households in case of Suspected malaria in democratic Republic of the Congo. Trav Med Infect Dis 2021;6(3):157. https://doi.org/10.3390/tropicalmed6030157.
- [2] Akilimali A, Bisimwa C, Aborode AT, Biamba C, Sironge L, Balume A, et al. Selfmedication and anti-malarial drug resistance in the democratic Republic of the Congo (DRC): a silent threat. Trop Med Health 2022 Oct 4;50(1):73. https://doi.org/ 10.1186/s41182-022-00466-9.
- [3] Organisation mondiale de la santé. Questions et réponses/Paludisme. 6 avril 2022. https://www.who.int/fr/news-room/questions-and-answers/item/malaria.
 [Accessed 28 November 2022].
- [4] Bahizire E, D'Alessandro U, Dramaix M, Dauby N, Bahizire F, Mubagwa K, et al. Malaria and iron load at the first antenatal visit in the Rural South Kivu, democratic Republic of the Congo: is iron Supplementation Safe or could it Be harmful? Am J Trop Med Hyg 2018;98(2):520–3. https://doi.org/10.4269/ajtmh.17-0585.
- [5] Organisation mondiale de la santé. Paludisme. 6 décembre 2021. https://www.who .int/fr/news-room/fact-sheets/detail/malaria. [Accessed 28 November 2022].

Faculty of Medicine, Official University of Bukavu, Bukavu, Democratic Republic of the Congo Department of Research, Medical Research Circle (MedReC), Bukavu, Democratic Republic of the Congo E-mail address: alvinbalume@gmail.com.

Ricardo Bisimwa Rusenyi Faculty of Medicine, University of Goma, Goma, Democratic Republic of the Congo E-mail address: rrusenyi@gmail.com.

Fabrice Kibukila Faculty of Medicine, Official University of Bukavu, Bukavu, Democratic Republic of the Congo Department of Research, Medical Research Circle (MedReC), Bukavu, Democratic Republic of the Congo E-mail address: fabricekibukila92@gmail.com.

Olivier Nyakio Faculty of Medicine, Official University of Bukavu, Bukavu, Democratic Republic of the Congo E-mail address: oliviernyakio@yahoo.fr.

^{*} Corresponding author. Faculty of medicine, Official University of Bukavu, Av. Georges Defour 00, Kadutu, 570, Bukavu, South Kivu, Democratic Republic of the Congo.

** Corresponding author. Faculty of Medicine, Official University of Bukavu, Bukavu, Democratic Republic of the Congo. *E-mail addresses*: rodfikbav@gmail.com (R.F. Bavurhe), aymarakilimali@gmail.com (A. Akilimali), bonkmuhozagasambi73@gmail.com (B. Muhoza).

Rodrigue Fikiri Bavurhe^{*}, Aymar Akilimali^{**}, Bonk Muhoza Faculty of Medicine, Official University of Bukavu, Bukavu, Democratic Republic of the Congo Department of Research, Medical Research Circle (MedReC), Bukavu, Democratic Republic of the Congo Chrispin Biamba

Department of Research, Medical Research Circle (MedReC), Bukavu, Democratic Republic of the Congo Faculty of Medicine, University of Goma, Goma, Democratic Republic of the Congo E-mail address: uwezobiambachrispin@gmail.com.

Malik Olatunde Oduoye College of Medical Sciences, Ahmadu Bello University, Zaria, Nigeria E-mail address: malikolatunde36@gmail.com.

Gaston Masimango Faculty of Medicine, Official University of Bukavu, Bukavu, Democratic Republic of the Congo Department of Research, Medical Research Circle (MedReC), Bukavu, Democratic Republic of the Congo E-mail address: gastonmasimango03@gmail.com.

Hugues Cakwira Department of Research, Medical Research Circle (MedReC), Bukavu, Democratic Republic of the Congo Faculty of Medicine, Catholic University of Bukavu, Bukavu, Democratic Republic of the Congo E-mail address: huguescakyr@gmail.co.

Alain Balume