

Malaria eliminated in Belize

On June 21, 2023, WHO certified Belize as malaria-free, making it the second country in central America to achieve this status after El Salvador in 2021.

Malaria is endemic in many Latin American countries; however, strong public health interventions in the region are contributing to reducing and eliminating the disease burden. In Belize, enhanced surveillance, wide access to diagnosis, and effective vector control methods have been key to the successful elimination of malaria in the country, with no indigenous cases since 2019.

The path to elimination took decades of commitment and collaboration between health personnel, community workers, the agricultural sector, and volunteers. Roberto Montoya (Pan American Health Organization, Washington, DC, USA) explained “In 2015, Belize reoriented its malaria programme to focus on enhanced surveillance among high-risk populations, allowing for strategic targeting of interventions and resources. Belize maintained malaria surveillance efforts throughout the COVID-19 pandemic, particularly on the borders with Mexico and Guatemala.”

Another important factor in achieving elimination was increased access to diagnosis and treatment, complemented by vector control methods including insecticide-treated mosquito nets and indoor spraying of insecticides. Kim Bautista (Ministry of Health, Belmopan, Belize) commented “Cases peaked in 1994 at just over 10 000. In the 1990s we were still doing ‘blanket spraying’ of insecticide, whereas later indoor residual spraying and strong community-based surveillance have been instrumental [in terms of parasite-control measures]. About 10 years ago we moved to complete supervision of treatment by vector control personnel, thereby ensuring parasitaemia was cleared in patients.”

Belize also prioritised robust surveillance to rapidly identify malaria infections and link patients with care and treatment. Ingrid Chen, Allison Tatarsky, and Gretchen Newby (Malaria Elimination Initiative, San Francisco, CA, USA) commented “Belize has strong collaborations with the agricultural and tourism sectors that support proactive surveillance among high-risk groups (eg, migrant workers from malaria endemic areas).” Community engagement was also key to elimination: in 2014–19, 23 (42%) of 55 cases were detected through blood samples taken by community health workers and malaria volunteers. In 2019, rapid diagnostic tests were also introduced at the community level. Chen, Tatarsky, and Newby highlighted “Belize has maintained a dedicated malaria workforce to deliver prevention interventions and train clinicians on malaria diagnosis and treatment.”

Belize’s journey to malaria elimination met several challenges, including the wide distribution and breeding habitats of *Anopheles* mosquitos and their behavioural plasticity (eg, exhibiting both indoor and outdoor biting). Chen, Tatarsky, and Newby commented “Outdoor exposure to infective bites is one of the biggest challenges in malaria control worldwide today.” Vector control was managed through collaboration between the Belize national vector control programme and the Belize Vector and Ecology Center. Montoya said “The partnership has ensured maintained entomological surveillance, which provides information on the distribution and density of malaria-carrying mosquitoes and their resistance to insecticides.”

Imported malaria cases from nearby endemic countries such as Guatemala, Mexico, Honduras, and Costa Rica (which had an outbreak

of *Plasmodium falciparum* malaria in April 2023) poses a threat to maintaining malaria elimination. A migration route of labourers working in the banana, citrus, and sugar industries runs from Honduras and Mexico to Belize. To handle the threat of malaria importation, rapid diagnostic testing kits have been placed in most of these farms, and workers are tested upon employment or on site if they become febrile during their employment. Montoya commented “Cross-border collaboration includes information-sharing across borders, binational agreements to maintain malaria surveillance, and the deployment of community health workers and volunteers along border areas to ensure the early detection of cases.”

Experts are hopeful that the elimination successes of Belize and El Salvador can be replicated in other central American countries. Chen, Tatarsky, and Newby commented “Malaria risk and ongoing malaria transmission in the region is predominantly among marginalised populations living in remote, hard-to-reach areas. Sustaining comprehensive malaria services for those populations will be key.”

Belize’s achievement in eliminating malaria is inspirational, its success built upon sustained political commitment and funding, and vigilance in case detection. Bautista commented “Reaching malaria elimination is a huge accomplishment for Belize. We have been working towards this goal for many years, with the support of multiple partners and neighbouring countries. We will continue this fight with our brothers and sisters until we eliminate malaria from the region.”

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Lancet Microbe 2023

Published Online
August 7, 2023
[https://doi.org/10.1016/S2666-5247\(23\)00251-3](https://doi.org/10.1016/S2666-5247(23)00251-3)

For more on **Belize malaria-free certification** see <https://www.who.int/news/item/21-06-2023-belize-certified-malaria-free-by-who>

For more on **malaria elimination in El Salvador** see [News Lancet Microbe 2021; 2: e181](#)

For the **Belize Vector and Ecology Center** see <https://biology.nd.edu/labs/achee-grieco-lab/projects-and-collaborators/belize-vector-and-ecology-center-bvec/>

For more on the **April 2023 malaria outbreak in Costa Rica** see <https://wwwnc.cdc.gov/travel/notices/level2/malaria-costa-rica>