

New research: High risk of malaria transmission after blood transfusions in sub-Saharan Africa

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A new study suggests that in certain areas of sub-Saharan Africa, nearly one in four blood bank supplies contain the parasites that cause malaria. Another study, focusing on the blood supply of Equatorial Guinea's capital, Malabo, found much higher levels of latent malaria infection, most of it—more than 89 percent—at a level that commonly-used diagnostic technology cannot detect. Both studies were presented at the 7th Multilateral Initiative on Malaria (MIM) Pan African Malaria Conference in Dakar, Senegal.

Sub-Saharan Africa carries the highest burden of [malaria](#) in the world. According to the World Health Organization (WHO), 90 percent of all malaria cases are located in the region. In the quest for elimination of malaria, all sources of disease transmission, including the region's [blood](#) banks, need to be addressed.

The first study, "A systematic review and meta-analysis of the risk of transfusion-transmitted malaria from blood donors in sub-Saharan Africa," conducted by Dr Selali Fiamanya and colleagues from the Worldwide Antimalarial Resistance Network (WWARN), gathered results from 24 studies to assess malaria prevalence among 22,508 blood donors. Pooled prevalence of malaria parasitemia was 23.46 percent (95%CI: 19.7% - 27.2%), ranging from 6.5 percent to 74.1 percent, including more than 10 studies from Nigeria, Africa's most populous country.

Half of all children receiving blood transfusions need the procedure to address malaria-induced anemia, the failure to keep these blood banks safe puts children and their parents at risk. Dr. Fiamanya's study shows that without better vigilance, children receiving transfusions to address malaria's impacts risk exposure to more malaria-causing parasites.

"Malaria is one of the primary infections that can be transmitted through a blood transfusion in sub-Saharan Africa," said Dr. Fiamanya at WWARN. "Our research is only the first line of inquiry needed to address this risk. Pregnant women and children receive the majority of transfusions in this region. The technical challenges of diagnosing and removing the Plasmodium parasites from the blood banks requires further analysis, but we know already that these findings threatens the next generation—our future."

The second study, "Prevalence of Malaria Parasites at the Malabo Blood Bank on Bioko Island, Equatorial Guinea," conducted by Dr. Claudia Daubenberger, colleagues at the Swiss Tropical and Public Health Institute, and Dr. Tamy Robaina at the Malabo Blood Bank, with support from Marathon Oil Corporation and the Equatoguinean Ministry of Health and Social Welfare, used a more sensitive diagnostic test—quantitative polymerase chain reaction (qPCR) assays—to examine 200 blood samples collected in the country's capital, Malabo.

Typically, rapid diagnostic tests (RDTs) and thick blood smear microscopy are used to diagnose malaria as these tests are much easier to deploy and use in the field. Neither diagnostic test can detect latent malaria infection, however, and low-level or asymptomatic infections can hide reservoirs of parasites that [fuel future malaria outbreaks](#).

Using the qPCR assays, which are currently too expensive and unsuitable for most field conditions, Dr. Daubenberger and colleagues found that 29.5 percent of the blood samples were contaminated. All of the samples

thought to be free of the [malaria parasite](#) held very low concentrations of the parasites—under 100 parasites per microliter of blood.

"With better screening technology and practices in place, blood banks in sub-Saharan Africa can be well placed to serve as a surveillance system, helping to monitor malaria and other transfusion-transmitted infectious diseases," said Dr. Daubenberger. "Our findings clearly reinforce World Health Organization recommendations that all transfusion recipients receive preventive malarial treatments. This disease is a treatable and preventable burden that few patients needing blood transfusions can afford."

The Pan African Malaria Conference is organized every three-to-four years by the MIM secretariat in collaboration with a group of African institutions. This year's meeting falls four months after the release of the WHO's [2017 World Malaria Report](#), which found there is a dire need for new malaria interventions, particularly in sub-Saharan Africa. The report found that despite recent advances, overall progress against global malaria control has stalled. In 2016, there were an estimated 216 million cases of malaria, about 5 million cases more than in 2015. Ninety percent of these cases occurred in sub-Saharan Africa.

This year's malaria conference in Dakar is running parallel to The Malaria Summit, Ready to beat malaria, which is taking place alongside the Commonwealth Heads of Government Meeting (CHOGM) in London on 18th April 2018. This will bring together business leaders, philanthropists, scientists, Heads of States and civil society to announce significant new commitments to mobilize domestic resources, increase investment and develop new innovation and approaches towards beating malaria. The commitments sit alongside a call to action urging the Commonwealth as a whole—who represent citizens making up six out of ten malaria cases globally—to commit to accelerating progress against malaria, the world's oldest and deadliest disease.

Provided by Burness

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