Largest study yet of malaria in Africa shows historical rates of infection

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Credit: CDC

(Medical Xpress)—A team of researchers with members from the Kenya Medical Research Institute, the University of Oxford and the University of KwaZulu-Natal has conducted the largest-ever study of the history of malaria in Africa. In their paper published as a letter article in the journal *Nature*, the group outlines the methods they used to gather their data, how it was analyzed and what they learned.

The goal of the study was to find as much data as possible that showed infection rates of Plasmodium falciparum, the parasite that causes malaria, across the continent—going back in time as far as possible. To that end, the researchers gained access to every known African data depository over the course of 21 years of effort. The data, they note, went back to 1900, when it became possible to take blood samples, analyze them, and spot the parasite. In all, they found data on 7.8 million blood samples from over 30,000 locations.

In sorting and analyzing the data, the researchers found that infection rates in modern times are far below those of a century ago. From 1900 to 1929, for example, they found an average infection rate of approximately 40 percent—by sharp contrast, the rate had dropped to just 24 percent during the years 2010 to 2015.

But the team also found that there were hills and valleys in the data, mostly related to weather events. During times when it rained a lot, rates went up, which was not a surprise, as mosquito populations rise during these periods. Conversely, rates went down during droughts. But they also found that other factors could cause a change in rates as well, such as when the use of chloroquine began to fail as a treatment for infected people and when DDT use became common as a means to kill mosquitoes. Also, the introduction of more modern treatments has also led to a big drop in infection rates, though, the researchers note, the data shows that could be short-lived as the parasite develops resistance.

The researchers also note that geography plays a big role in rates as well—some parts of Africa get more rain and thus have higher rates, for example. Also, some parts of the continent, particularly the mid-section have not seen much improvement in rates due to a variety of factors such as war and limited access to health care.

More information: The prevalence of Plasmodium falciparum in sub-Saharan Africa since 1900, *Nature* (2017). nature.com/articles/doi:10.1038/nature24059