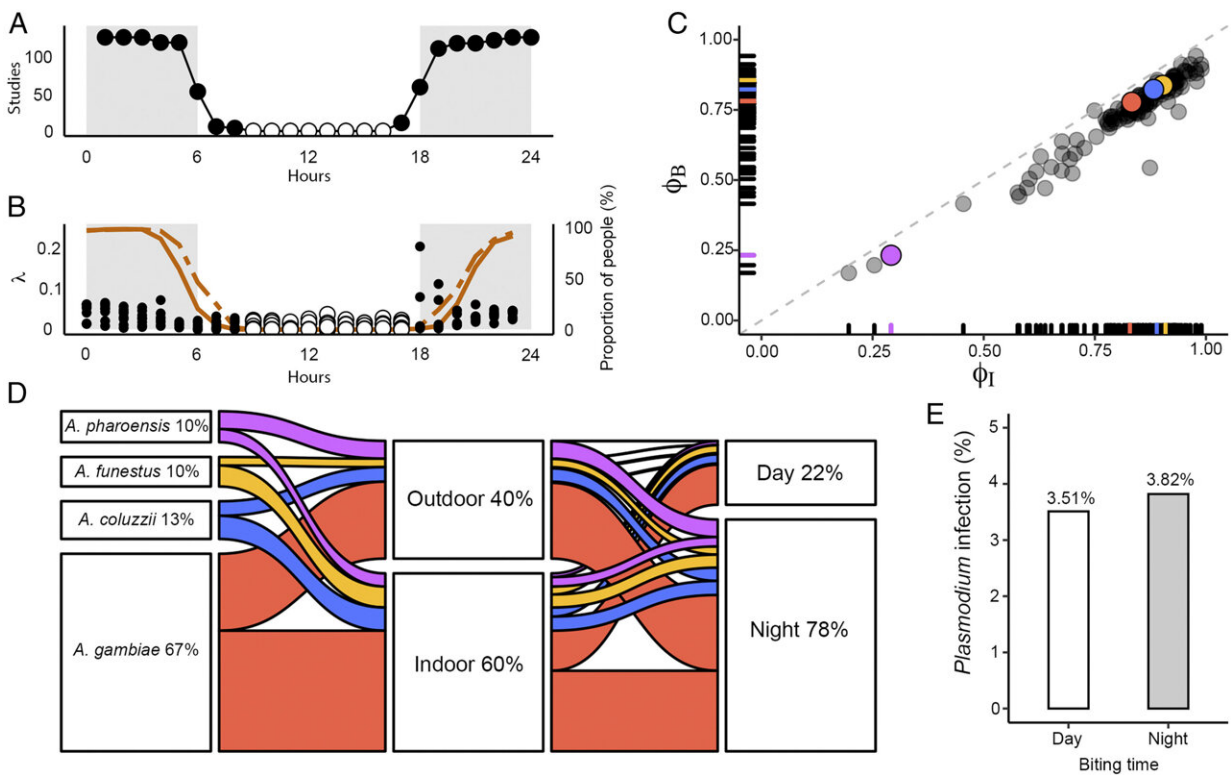


New study suggests more malaria-carrying mosquito bites happen during the day than thought

May 18 2022, by Bob Yirka



Impact of diurnal biting activity on residual malaria transmission in Bangui. (A) Sampling coverage of the studies reviewed by Sherrard-Smith et al. (24) denoted by the hour-by-hour frequency of recorded biting activity. Gray areas represent nighttime. None of the reviewed studies cover the period from 0900 to 1700 hours (white dots). (B) Hourly distribution along the day of the proportion of mosquitoes' bites (λ , dots in the figure) in relation to the average proportion of people indoors (orange dashed line) or in bed (orange continuous line). White

dots designate the period when biting occurs when people are not in households. (C) Combined mosquito and human activity data estimating mosquito biting risk expressed by the mean proportion of bites (black dots in B) taken while humans are indoors (ΦI) or in bed (ΦB). *A. gambiae* (red), *A. coluzzii* (blue), *A. funestus* (yellow), and *A. pharoensis* (violet). Each gray dot represents the corresponding values of individual studies of the systematic review (24). (D) Summary of the observed proportion of mosquito bites by species according to location and period of the day: *A. gambiae* (red), *A. coluzzii* (blue), *A. funestus* (yellow), and *A. pharoensis* (violet). (E) Prevalence of *P. falciparum* DNA in the head/thorax of a subset of *Anopheles* specimens ($n = 271$) randomly chosen from the dataset according to the period of the day when they were collected. Credit: *Proceedings of the National Academy of Sciences* (2022). DOI: 10.1073/pnas.2104282119

A team of researchers from Institut Pasteur de Bangui, the University of Montpellier and Centre International de Recherches Médicales de Franceville has found that contrary to conventional thought, malaria-carrying mosquito bites happen more often during the day. In their paper published in *Proceedings of the National Academy of Sciences*, the group describes their year-long study of biting mosquitoes in Bangui, Central African Republic, and the need for new ways to combat malaria in Africa.

For many years, medical workers have stressed the importance of protection from mosquito bites in Africa (96% of the deaths due to malaria are in African countries). Methods include covering beds with netting, as the prevailing wisdom suggests that most bites by mosquitoes carrying malaria happen while people are sleeping. In this new effort, the researchers found that these measures may not be enough because many more bites happen when people are away from home during the day than previously thought.

The researchers studied four sites around Bangui (some inside, some

outside) for 48-hour periods every month over the year between June 2016 and May 2017. The researchers did not allow the mosquitoes to bite them, but instead, captured them after they landed. Each pre-bite was cataloged regarding time and place, and each of the bugs tested to see if it was carrying the [malaria parasite](#).

After the year had passed, the researchers analyzed the data and found that approximately 20 to 30% of the bites occurred during [daylight hours](#), away from home, such as when people were at work or at school. They also found that the percentage of mosquitoes carrying the parasite was roughly the same during the day as it was at night. The researchers note that few mitigation efforts are currently underway to prevent bites during the day, which, they suggest, may contribute to many more cases of malaria than previously believed. They further suggest that more study of [mosquito bites](#) during the day is required to find the true extent of the problem.

More information: Claire Sangbakembi-Ngounou et al, Diurnal biting of malaria mosquitoes in the Central African Republic indicates residual transmission may be "out of control", *Proceedings of the National Academy of Sciences* (2022). [DOI: 10.1073/pnas.2104282119](https://doi.org/10.1073/pnas.2104282119)

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