

The prevalence and distribution of *Plasmodium species* among children at Malabo Regional Hospital on Bioko Island, Equatorial Guinea

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According to the World Health Organization (WHO), *Plasmodium falciparum* (Pf) infections account for about 99% of the total malaria cases in Africa. Thus antimalarial drugs and vaccines are mostly developed to target Pf infections. However, most malaria-endemic countries are increasingly recording mixed *Plasmodium* infections involving two or more of the species. Artemisinin-based combination therapies (ACTs), which are effective against blood stage infections, are recommended by WHO for the treatment of uncomplicated malaria caused by Pf. Relapses of *Plasmodium vivax* (Pv) and *Plasmodium ovale* (Po) blood stage can occur months after treatment of primary blood stage infections. Interactions of mixed *Plasmodium* species infections can influence the severity of the disease. Understanding the extent of mixed *Plasmodium* infections and species distribution on Bioko Island is important for the ongoing malaria vaccine trials in Equatorial Guinea. A total of 237 confirmed malaria cases were examined by microscopy to determine species-specific parasitemia and the prevalence of mixed infection at the Malabo Regional Hospital among children between one to 14 years old. Three species of *Plasmodium* were identified, *P. falciparum*, *P. malariae*, and *P. ovale*. Infections with *P. falciparum* alone accounted for 84.8% of the total cases, and that of *P. malariae* alone was 1.7%. Mixed infection of *P. falciparum* with *P. malariae* was 13.1%, while mixed infection of *P. malariae* with *P. ovale* accounted for 0.4%. Malaria vaccines and control strategies targeting only the dominant species could end up replacing the less dominant species. It is therefore important to establish the prevalence and the distribution of the different species of human *Plasmodium* parasites in control programs.