index houses compared to the control. Differences in the indoor density of the mosquitoes species were significant (P = 0.04). The data indicates higher transmission and malaria prevalence in the index case houses compared to the control, hence an indication of non-random vector and case distribution. Analysis of spatial distribution will be undertaken to show relationship between malaria cases and potential breeding habitats.

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SEVERE FLOODING AND MALARIA TRANSMISSION: IMPLICATIONS FOR DISEASE CONTROL IN AN ERA OF GLOBAL CLIMATE CHANGE

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There are several mechanisms by which global climate change may impact malaria transmission, including those that relate to changes in the frequency of extreme weather events including heat, drought, and floods. We sought to assess how the increased frequency of extreme precipitation events associated with global climate change will impact malaria transmission in highland areas of East Africa. We used a differences-in-differences, quasi-experimental design to examine spatial variability in the incidence rate of laboratory-confirmed malaria cases and malaria-related hospitalizations comparing villages at (1) high vs. low elevations, (2) with and without rivers, and (3) upstream vs. downstream before and after severe flooding that occurred May 1, 2013 in the Kasese District of Western Uganda. Findings: During the study period 7,596 diagnostic test were performed and 1,285 patients were admitted with a diagnosis of malaria. We observed that extreme flooding resulted in an increase of approximately 30% in the risk of an individual having a positive malaria diagnostic test in the post-flood period in villages bordering a flood-affected river compared with villages further from a river with a larger relative impact on upstream vs. downstream villages (adjusted RR 1.91 vs. 1.33). In conclusion, extreme precipitation such as the flooding described here may pose significant challenges to malaria control and elimination programs, and will demand timely and sustained responses to prevent and mitigate deleterious impacts on human health.

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MALARIA IN THE FIRST TRIMESTER OF PREGNANCY: INCIDENCE AND ASSOCIATED RISK FACTORS IN BENIN, SUB-SAHARAN AFRICA

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In Africa, preventive drug strategies against malaria in pregnancy are recommended from the 2nd trimester and bed nets are rarely used in early pregnancy. Therefore, women remain insufficiently, or not, protected during the first trimester, when malaria may be particularly deleterious for the mother and the child. The incidence of and risk factors associated with malaria in the first trimester have been poorly explored so far. A subsample of 200 pregnant women recruited before conception, were followed up monthly until delivery. Malaria was detected during the 1st, 2nd and 3rd month of pregnancy. A multivariate mixed model was used to assess factors associated with malaria during the first trimester. The cumulative incidence of malaria during the first trimester of pregnancy was 17.8% (11.2% during the first month). Early gestational age (≤ 6 weeks' gestation) (aOR: 2.69 [1.35-5.37]) and living in a lakeside area (aOR: 0.17 [0.04-0.85]) were the main factors significantly associated with malaria in the first trimester. In conclusion, malaria was highly incident during the first trimester of pregnancy, particularly during the first month and in women living far from the lake. The consequences of these infections for the mother and her child need to be assessed.

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FIRST PILOT PROJECT FOR ACTIVE SURVEILLANCE OF ASYMPTOMATIC MALARIA CASES IN HISTORICALLY ENDEMIC REGIONS IN PARAGUAY BY TWO METHODS MICROSCOPY AND MULTIPLEX SEMINESTED PCR

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In 2014, Paraguay was placed among the 16 countries that reported zero indigenous cases of Malaria. The implementation of active surveillance to detect potential asymptomatic cases in historically endemic regions in Paraguay is needed considering the indigenous parasite is *Plasmodium vivax* that contrary to *P. falciparum*, can remain latent as hypnozoites in the host. In the present study we applied the microscopy and the molecular diagnosis to search for sub-patent parasitemias in asymptomatic cases. Adults from a total of 15 localities from three departments, Alto Paraná, Caaguazú and Canindeyú were selected, based on the records of the SENEPA considered as the last localities that reported at least one case in the period of 2007-2011. The sample size obtained for 95% confidence was 361 but 332 samples were collected and analyzed up to now and informed consent of each of them was obtained. Thick smears were analyzed by microscopy. DNA samples were extracted from blood drop dried on filter paper and analyzed by the Seminested Multiplex PCR using the primers that amplify the 18 S rDNA for the four species that cause Malaria (*P. falciparum*, *P. ovale*, *P. malariae* and *P. vivax*). Human 18S rDNA was amplified as internal control. Sensitive essays allowed to detect until 0,01 ng of genomic *P. falciparum* DNA. From the 332 samples, 11.4% were from the department of Canindeyú, 30.1% from Alto Parana and 58,4% from Caaguazú. The distribution per locality was: 11,4% from Pira Vera, 10.5% from Maracamoa, 7.8% from Nueva Esperanza, 11.7% from Mision Verbo Divino, 2.4% from San Juan, 1.8% from Mbarigui Indígena, 17.2% from Mil Palo, 0.9% from Nueva Brasilia, 4.2% from Nueva Esperanza, 11.1% from Nueva Toledo, 1.8 from Ñu Jhovy, 3.6% from Pindo´i, 2.4% from Santa Clara, 7.5% from Santa Teresa and 5.4 from Yby Moroti. Fifty seven percent were female and 43% were male. We could not detect any sub-patent parasitemia that can reveal the presence of asymptomatic cases. The results obtained in this study are very promising for our country, at this stage where all the efforts are done towards the eradication of the Malaria.

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MALARIA IN AN INTERNALLY DISPLACED PERSONS CAMP IN THE DEMOCRATIC REPUBLIC OF CONGO

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Malaria remains a leading cause of death in children under 5. Malaria prevention and treatment efforts in the Democratic Republic of the Congo (DRC) are hindered by armed conflict, which has resulted in the displacement of approximately 2.7 million individuals. This study aimed to describe malaria cases treated at a health centre serving an internally displaced persons (IDP) camp in DRC. The study took place in Luchebere IDP camp in the DRC which housed 2,580 individuals (318 children <5) at the time of the study in 2014. The camp consisted of two waves of IDPs: (1) ~1,400 individuals from Masisi and Walikale in Sept 2013; and (2) ~1,500 individuals from Northwest Masisi in Jan-Feb 2014. Febrile patients