

Final Abstract Number: Pre.008

Session: Pre-Congress Symposium: Emerging African Investigators Symposium

Date: Wednesday, April 2, 2014

Time: 13:00-17:00

Room: Room Roof Terrace

### Anopheles fauna and entomological inoculation rates in the health district of Pitoa, North Cameroon



A.B. Njeambosay<sup>1,\*</sup>, J.D. Bigoga<sup>2</sup>, J. Atangana<sup>3</sup>, R. Tabue<sup>3</sup>, A.B.Y. Fodjo<sup>4</sup>, R.F.G. Leke<sup>4</sup>

<sup>1</sup> The Biotechnology Centre, University of Yaounde 1, Yaounde, Cameroon

<sup>2</sup> Biotechnology Center/University of Yaoundé I, Yaoundé, Cameroon

<sup>3</sup> The National Malaria Control Program, Yaounde, Cameroon

<sup>4</sup> Biotechnology center, University of Yaounde I, Yaounde, Cameroon

**Background** Malaria remains a major public health disease, especially in Sub-Saharan Africa. The long-term reliance on the use of long lasting insecticide treated bed nets and indoor residual spraying for vector control is being threatened by the emergence and spread of insecticide resistant vectors. Also, in Cameroon like many other countries in African, there is often a lack of adequate information on the composition, biology, and behavior of the local vector population prior to the implementation of these control tools. This study was aimed at acquiring baseline information on the characteristics of the local anopheline fauna and their contribution to malaria transmission in the health district of Pitoa, in order to better plan for vector control in the northern region of Cameroon

**Methods & Materials** Mosquitoes were collected on volunteers (6 pm- 6 am) in 12 villages. They were identified morphologically and the ovaries of a proportion of *Anopheles* were dissected and parity status determined. The head and thorax of a proportion of *Anopheles* was homogenised and used to check for the presence of *P. falciparum* circumsporozoite protein by ELISA. The infection rate and the vector entomological inoculation rate were then calculated. DNA was extracted from a proportion of *An. gambiae s.l* and members of this complex were identified by PCR.

**Results** A total of 8641 mosquitoes were collected, 29.2% of which were *Anopheles*. Among the *Anopheles* vectors, *An. gambiae s.l*, made up of *An. arabiensis* (66.7%) and *An. gambiae* (33.3%), was the predominant species, representing 69.05% of the vector population. *An. ziemanni* (10.9%), *An. rufipes* (7.0%), *An. funestus* (6.0%), *An. paludis* (5.2%), and *An. pharoensis* (1.9%), were minor vector species. The vectors significantly fed outdoors ( $P=0.027$ ) and had a parity rate of 80.1%. On average, inhabitants of Pitoa stand a risk of receiving 3.3 ib/m/n. However, an infection rate of 11 ib/m/n was recorded in one of the study sites.

**Conclusion** Integrated vector control measures, including larva control should complement the indoor use of insecticide treated bed nets for vector control in this locality

<http://dx.doi.org/10.1016/j.ijid.2014.03.415>

Final Abstract Number: Pre.009

Session: Pre-Congress Symposium: Emerging African Investigators Symposium

Date: Wednesday, April 2, 2014

Time: 13:00-17:00

Room: Room Roof Terrace

### RDT are more cost effective to detect asymptomatic *Plasmodium falciparum* infection which is associated with anemia in pregnancy, Kinshasa, Democratic Republic of the Congo



J.R. Matangila<sup>1,\*</sup>, P. Lutumba<sup>2</sup>, J.-P. Van Geertruyden<sup>3</sup>

<sup>1</sup> University of Kinshasa, Kinshasa, Congo, Democratic Republic of

<sup>2</sup> Institut National de Recherche Bio-médicale (INRB), Kinshasa, Congo, Democratic Republic of

<sup>3</sup> University of Antwerp, Antwerp, Belgium

**Background:** In areas of high malaria transmission, *P. falciparum* infection does not usually result in clinical symptoms. Malaria infection during pregnancy is characterized by malaria related anemia and placental malaria. This situation has been associated with poor pregnancy outcomes across many populations. The aim of this study was to determine the extent of asymptomatic *P. falciparum* infection, its relation with anemia as well as the most cost-effective technique for its diagnosis in healthy pregnant women living in Kinshasa, Democratic Republic of the Congo, an endemic area for malaria transmission.

**Methods & Materials** A cross-sectional study was conducted in healthy pregnant women attending prenatal care consultations. Information on socio-demographic characteristics and cost data was collected using a questionnaire. *P. falciparum* infection was diagnosed using Rapid Diagnostic Test, microscopy and Polymerase Chain Reaction. Hemoglobin concentration was also determined. Bivariate analysis and logistic regression were used to assess the association between variables.

**Results:** In total, 332 pregnant women were enrolled. RDT and microscopy data was available for all the blood samples and 166 samples were analyzed by PCR. The prevalence of asymptomatic *P. falciparum* infection using microscopy, RDTs and PCR, were respectively 21.6% (95%CI: 17.4-26.6%), 27.4% (95%CI: 22.7-32.6%) and 29.5% (95%CI: 22.7-37.1%). Compared with PCR as the gold standard, RDTs had a sensitivity and specificity of 81.6% (95%CI: 68.0-91.2) and 94.9% (95%CI: 89.2-98.1) respectively, to diagnose asymptomatic *P. falciparum* infection. The corresponding values for microscopy were 67.3% (95%CI: 52.5-80.1) and 97.4% (95%CI: 92.7-99.5). Prevalence of anemia was 61.1% and the likelihood of having anemia for pregnant women with asymptomatic malaria was about 5 times more (adjOR: 5; 95%CI: 2.3-10.1;  $p < 0.001$ ). RDT was more cost-effective compared to microscopy. Incremental cost-effectiveness ratio was US\$ 63.47 per microscopy adequately diagnosed case.

**Conclusion** These alarming results emphasize the need to actively diagnose and treat asymptomatic malaria infection during prenatal care visits, regardless of Intermittent Preventive Treatment with Suldoxine-Pyrimethamine, and to increase efforts in promoting the use of Insecticide Treated Nets in DRC.

<http://dx.doi.org/10.1016/j.ijid.2014.03.416>