PA-016 RE-EVALUATION OF MALARIA DIAGNOSIS BY MOLECULAR METHODS REVEALS MUTATIONS IN HRP-2 AND DRUG RESISTANCE MARKERS IN CAMEROON

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Background As the decline in malaria cases becomes obvious in most sub-Saharan African countries, a new major concern is accurate diagnosis of low parasitaemia which can cause sub-patent infections and false-negative Rapid Diagnostic Test (RDT) results. We assessed the accuracy malaria diagnosis by RDT and microscopy are currently been conducted in Cameroon, by re-evaluating some samples from patients who sought medical care at three health centres in Yaounde. The study would provide information which can help the national malaria control program to reorient interventions strategies to enhance accurate diagnosis within the country.

Methods We undertook a research project within a period of six months to re-evaluate malaria confirmed cases by microscopy and RDT test (HRP2: SD BIOLINE Malaria Ag P.f/Pan: Optimal screening test for *P. falciparum* and other *Plasmodium species*). We used molecular methods such as nested PCR, in-house tailored loop amplified isothermal amplification (LAMP) and GenoType MalariaDR molecular assay to revalidate these samples. DNA was directly extracted from the RDT cassettes using qiagen spin columns.

Results Results showed discrepancies in malaria diagnosis by microscopy, RDT, PCR, LAMP and GenoType MalariaDR. Most false negatives results (RDT negative but positive by microscopy and molecular methods) are linked to low parasite density

usually<150 asexual parasites/µl. However, there were some cases where higher parasite density >5,00/µl could lead to false negative results (linked to a deletion of about 870 bp in the HRP-2 gene). GenoType MalariaDR revealed the presence of mutations on *Pfmdr1 and Pfcrt* associated with resistance to ART.

Conclusions The study provided factual information on the detected *P. falciparum* isolates, *HRP-2* mutations and the performance of RDTs and *Pfmdr1, Pfcrt* and *ART* resistance markers present in the population. The first-line of ACT in Cameroon is artesunate+amodiaquine, yet possible resistance isolates of amodiaquine and artesunate could be circulating in the country.

PA-020 FOSMIDOMYCIN-PIPERAQUINE AS NON-ARTEMISININ-BASED COMBINATION FOR ACUTE UNCOMPLICATED *PLASMODIUM FALCIPARUM* MALARIA

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Background As investment in research related to artemisinin resistance is a key objective of the Global Plan for Artemisinin Resistance Containment (GPARC), fosmidomycin and piperaquine are being developed to address the delay in parasite clearance following treatment with Artemisinin-based Combination Therapy (ACT). Though artemisinin resistance occurs principally in the Greater Mekong Region, there are concerns that it will emerge in sub-Saharan Africa.