Age-profile characterization of malaria antibody responses settings in low transmission areas of Madagascar

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Background: Malaria antibody dynamics are misunderstood. In central highlands of Madagascar, districts remain unstable and low malaria endemic and need novel tools to improve epidemiological surveillance.
Methodology: From May-July 2014, investigations were carried out in 7-targeted districts in central highlands in order to reach 2 primary schools for each sampled communes. For included schools, 30 children and their tutors had capillary blood taken for rapid diagnostic test. A multiplex bead-based immunoassay was performed to assess residual pocket of transmission in these low level settings.
Results: 12768 samples of school-children and tutors related to 179 schools was collected in 91 communes. A Low malaria prevalence of 0.53% (range: 0% to 20% by school) was observed. High *P. falciparum* biomarkers variability (Ambatofinandrahana's PfMSP1 mean=1783.58 and sd=3183.22; Ambohimahasoa's PfAMA1 mean=2251.01 and sd=4208.21). Expect PF13, all *P. falciparum* biomarkers were correlated at least one others (PfMPS1, PfAMA1, PfCSP, PfGLURP).
Significance: This study shows the role that can play the sero-epidemiological data as sensitive tools to understand malaria antibody dynamics and monitor transmission intensity in low malaria endemic settings.