**Preamble**: A key skill we’re looking for in our team is an ability to be curious and motivated to explore data from our malaria studies, as well as to communicate findings to a lay audience. You’ll find attached a dataset that is quite typical of the kind of data we work with. It contains data from one of our population longitudinal studies (PRISM 1) conducted in Kanungu between 2011- 2016. We would like you to analyze this dataset to characterize patterns of malaria infection in this community as well as signatures of population immunity. We would like you to write a short report (one page max) summarizing your findings, ensuring they are clearly illustrated with comprehensible figures. Please let me know if you have questions about this.

Notes on the study

All households in the site were enumerated, and then approximately 100 households were selected at random from each site. Between August and September 2011, all children from these households aged between 6 months and 10 years who met eligibility criteria were invited to participate. As the cohorts were dynamic, additional children from participating households were invited to participate if they became eligible while the study was ongoing.

The studies included passive and active follow-up of participants. Active follow-up (Routine visits) took place every 3 months and participants were asked to provide a blood sample to test for malaria infection using thick blood smears. In addition, parents/guardians were encouraged to bring their children to designated study clinics for any illness (Non-routine visits). All children who reported fever in the previous 24 hr or were febrile at the time of the visit (tympanic temperature >38.0°C) were tested for malaria infection with a thick blood smear.

This dataset contains data of all visits (routine and non-routine) where participants were tested for malaria infection.

Notes on the dataset:

* id: id of individual participant
* hhid: household id for participant
* date: date of visit
* age: age is in years
* sex: male or female
* visittype: whether visit was a routine visit or a non-routine (sick) visit
* febrile: Yes if participant had a fever at the time of the visit or reported fever in the previous 24h. No otherwise.
* parasitedensity: Parasite density measured by microscopy on a thick blood smear. A parasite density of 0 means no infection was detected.

Specific questions:

1) Please estimate the incidence of symptomatic malaria (fever + malaria infection) in this cohort and how it varies over time, age, and other relevant covariates.

2) Please estimate the prevalence of parasitemia (proportion of participants that are infected at a given point in time) and how it varies over time, age, and other relevant covariates.

3) In endemic settings like this one, people develop immunity to P. falciparum as they get older, resulting in lower parasite densities when they are infected. Do you find any evidence of acquisition of immunity in this dataset?

**Once we schedule an interview date, please send me the report the evening before. In addition, if you could copy and paste the key findings into a powerpoint that you can share during the interview that will help with discussion. You should be ready to explain your findings as well as your analytical approach.**