Large-scale evaluation of mosquito repellent as an additional control measure in tackling malaria in pre-elimination areas

MalaResT: We aim to tackle MALaria RESidual Transmission

Outdoor and/or early-biting malaria vectors potentially expose persons to a transmission window which is not covered by a widespread distribution of insecticide treated bed nets. Massive use of topical repellents may protect against this residual malaria transmission. The MalaResT project aims to provide a proof of principle for the use of repellents as an additional control measure by conducting a large scale field survey with three objectives:

**Epidemiology:**
To assess the epidemiological efficacy of repellents on the prevalence of malaria carriers and malaria incidence.

**Entomology:** see poster 1027
To assess the efficacy of a topical repellent on the individual and community level (individual protection and mass effect).

**Anthropology:**
To assess the acceptability and adherence of topical repellents in the communities.

### Study Area

The epidemiological efficacy of the massive use of repellents was evaluated in a community based randomized study covering a population of 40,000 inhabitants in the province of Ratanakiri, Cambodia (Fig 1). Following a pre-trial survey, 98 clusters were randomly divided in two arms (Fig 2): a control (LLIN**) and intervention arm (LLIN + topical repellent). The principal indicator is the prevalence of parasite carriers measured by PCR techniques using a mobile lab in the field (Fig 3) (Canier et al., Malaria Journal, 2013, 12:405).

### Study Design

**Summary statistics**

**Statistical analysis**

**Prevalence data**

### Material and Methods

**Introduction**

**Large Material and Methods**

**Material and Methods**

**Methods**

**Methods**

**Summary statistics**

**Statistical analysis**

**Prevalence data**

This study did not reveal a significant reduction in the malaria prevalence in the intervention arm as compared to the control arm. Preliminary data indicate the repellent coverage (measured through a two-weekly mobile bottle exchange program) to be reasonably high (80% exchange > 4 times). Self-reported repellent use in the intervention arm is in the range of 70-80% and people indicated to use more repellent in forested sites. However the overall prevalence of the study is lower than expected and we await the results of multiplex serological tests and passive case detection to draw final conclusions in this project.

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