Longitudinal surveillance of disease-transmitting mosquitoes in rural Tanzania: creating an entomological framework for evaluating existing and new interventions

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Background

High quality mosquito surveillance data is necessary to: 1) assess spatial and temporal disease trends, 2) evaluate new and existing interventions, identify transmission hotspots, 3) identify dominant vectors and pathogens or detect new ones, 4) to readily detect disease outbreaks and 5) predict future disease trends. We established a longitudinal adult mosquito surveillance system in rural Tanzania, to provide essential data necessary for examining malaria transmission patterns and evaluating existing and new interventions.

Methodology

Study area

The surveillance is conducted rural villages in the Kilombero valley, southern Tanzania

Households in the study village were assigned into 16 clusters based on latitudes, the 6 households randomly selected per cluster (total = 96 households).

Mosquitoes are sampled using CDC light traps from each of the selected households once every month (6 households/day; 4 days/week)

The mosquitoes are identified by taxa as, Anopheles gambiae s.l Anopheles funestus, Culex or Mansonia species

The data are recorded in the entomological data forms, after which a sub-sample of the malaria vectors were examined by (PCR) and (ELISA)

Results

The results show that there is spatial and temporal clustering of vector densities in the study area, therefore, this information is very essential for spatial and temporal targeted interventions against disease transmitting mosquitoes.

Conclusion