Evaluation of outdoor insecticide-impregnated barriers:

a new intervention for malaria control in the Solomon Islands

Nick Deason
University of Notre Dame
MENTOR: Neil Lobo

Photograph by Neil Lobo

Malaria

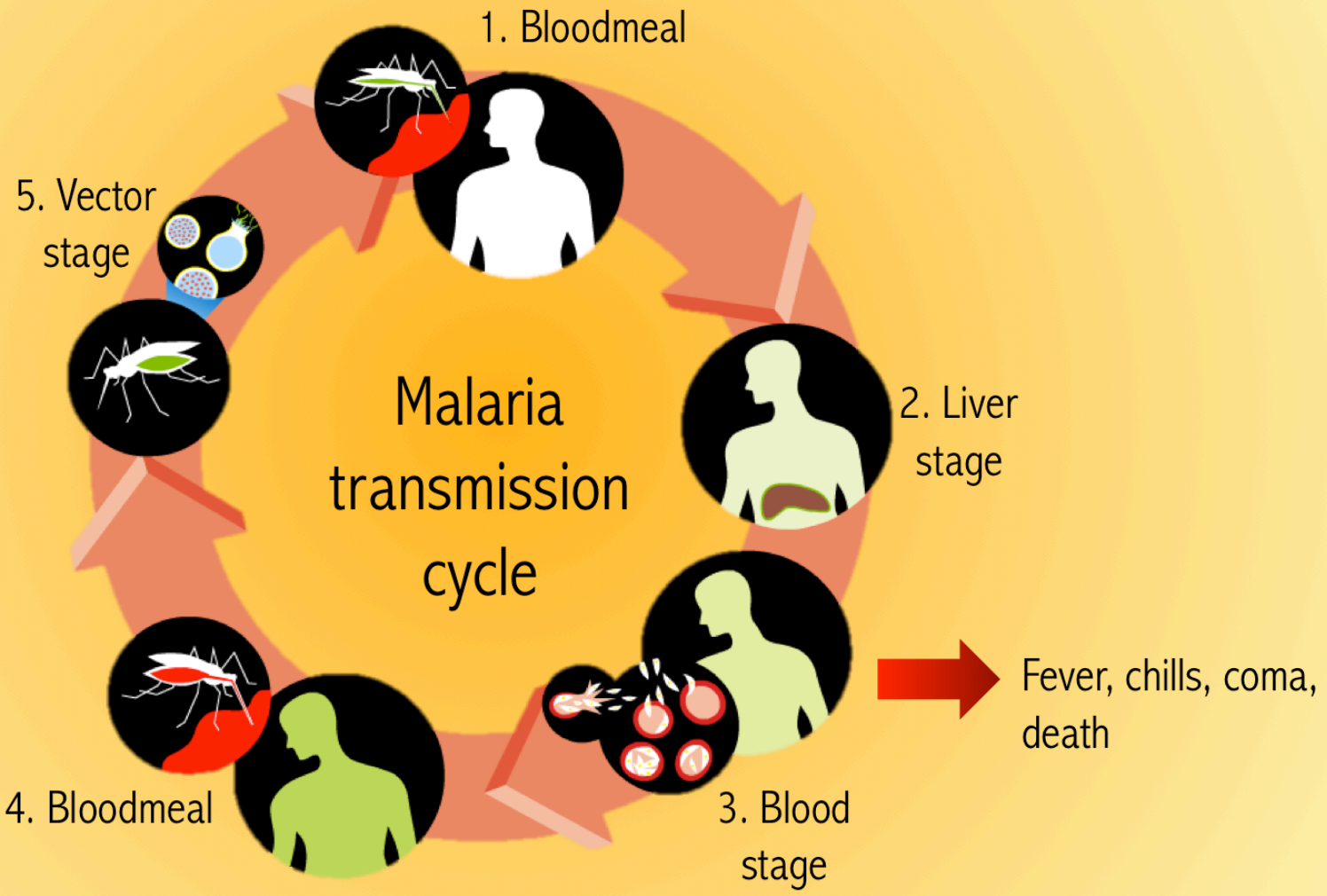
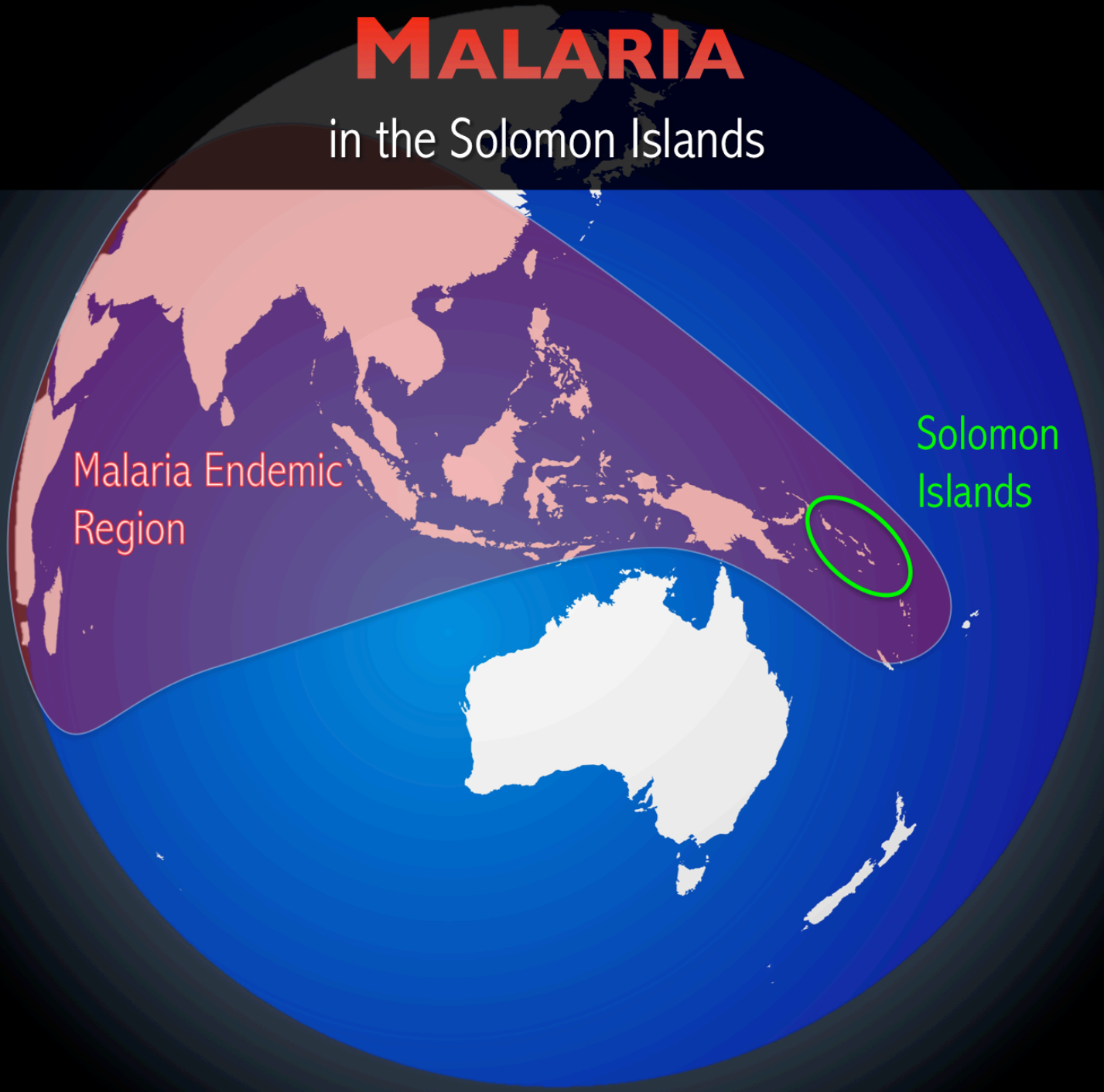


Illustration from Johns Hopkins Bloomberg School of Public Health

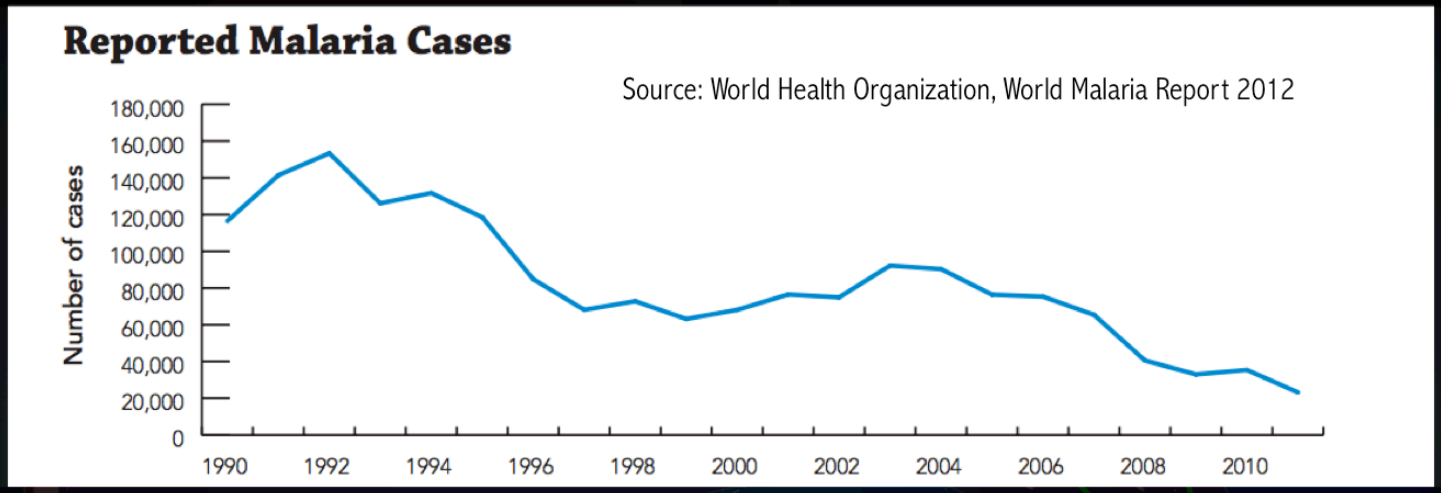
Malaria

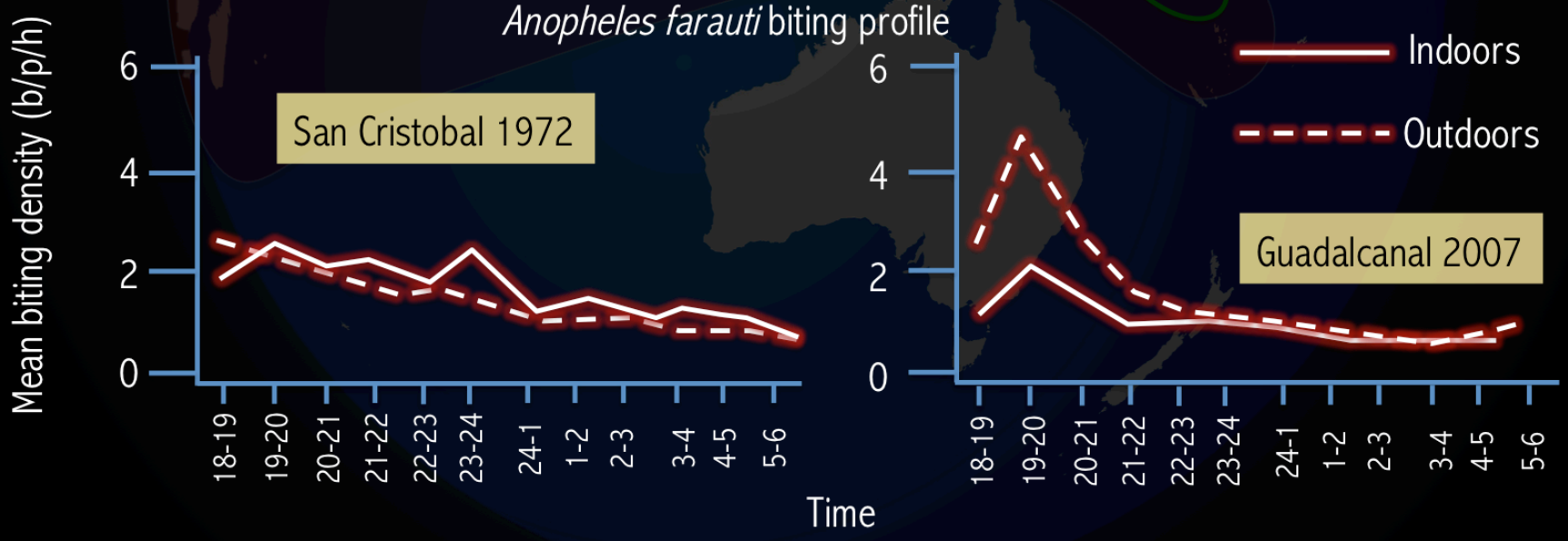
in the Solomon Islands



Malaria

in the Solomon Islands

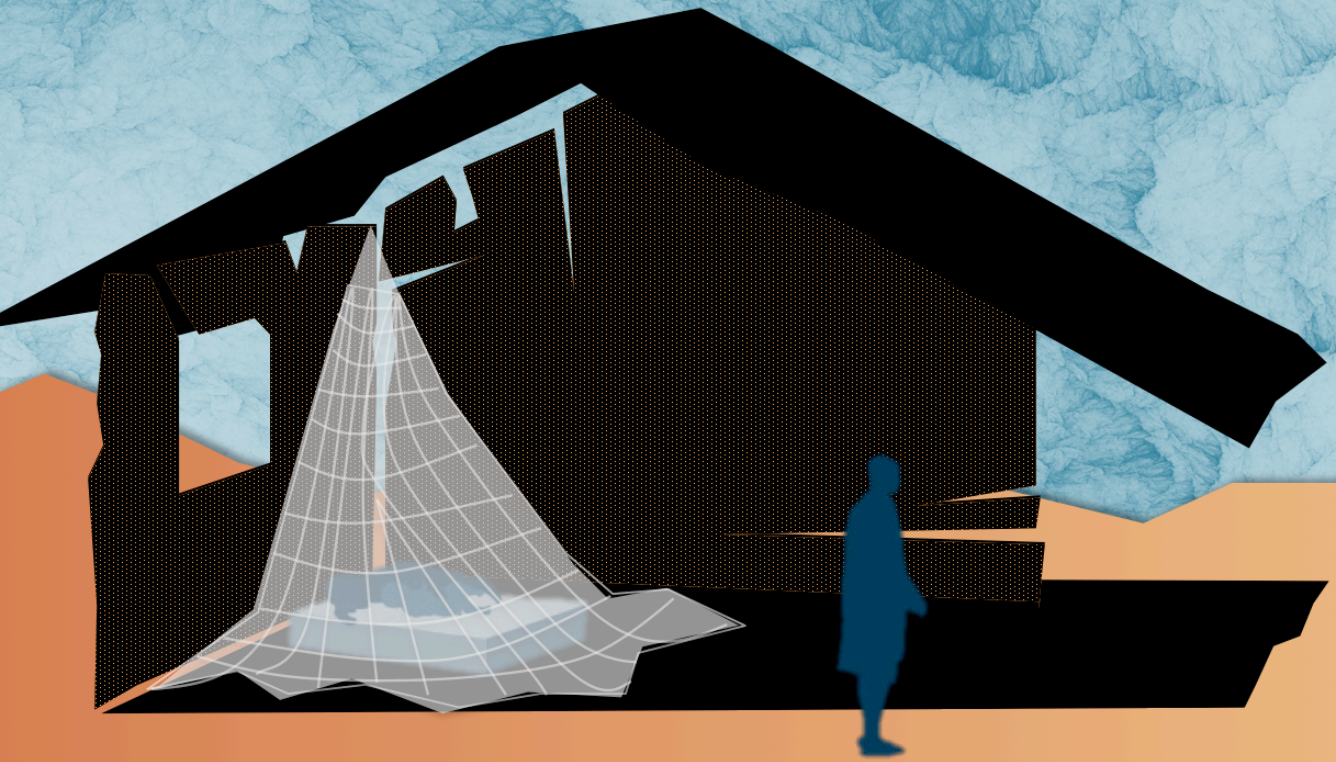




Source: Taylor (1975) and Malaria Transmission Consortium

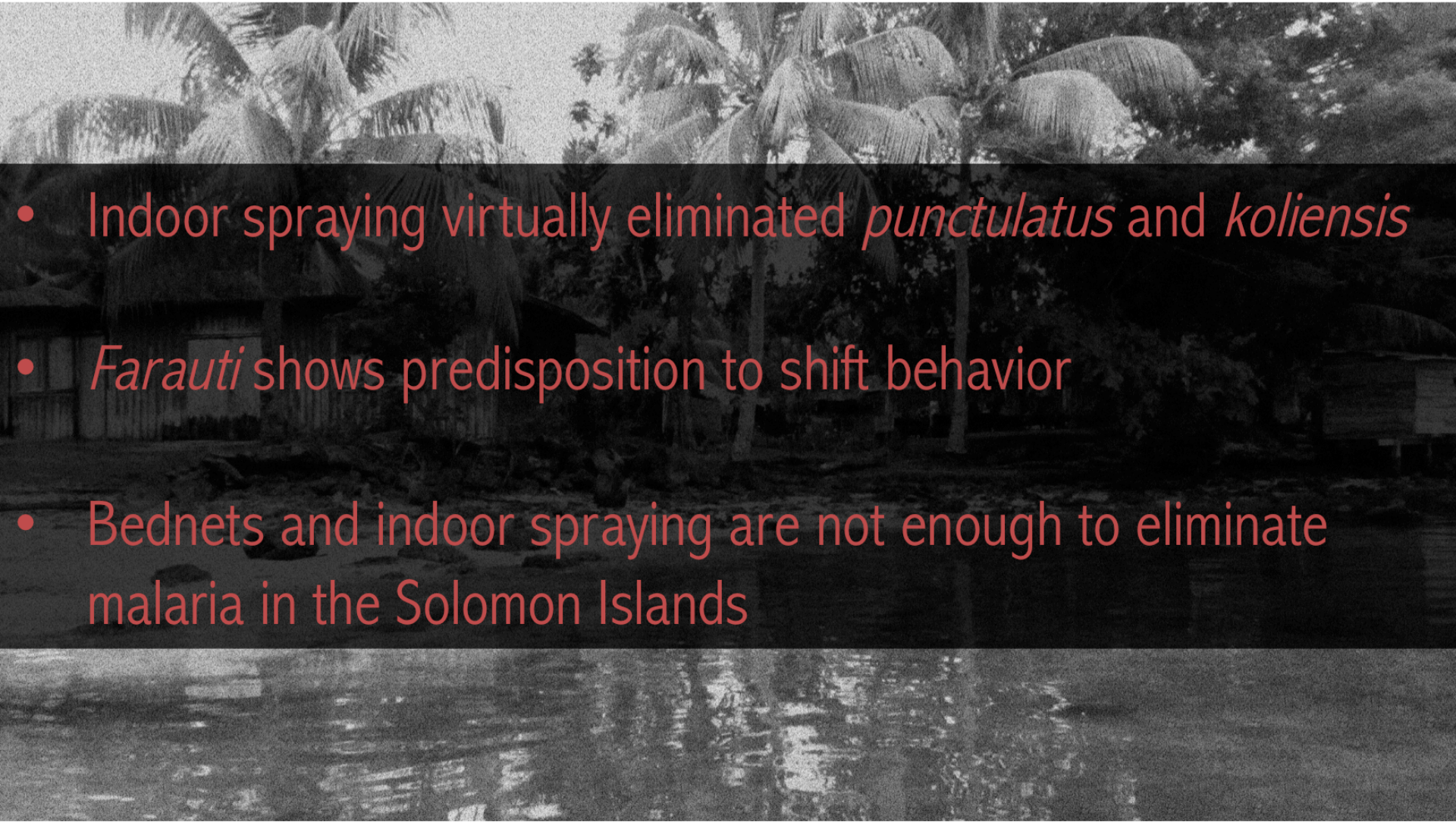
Current methods of vector control

1. Insecticide-treated bednets
2. Indoor residual spraying



Modified from illustration by Neil Lobo

Lessons from history



- Indoor spraying virtually eliminated *punctulatus* and *koliensis*
- *Farauti* shows predisposition to shift behavior
- Bednets and indoor spraying are not enough to eliminate malaria in the Solomon Islands

Research Goal

Design and evaluate an intervention to reduce malaria in the Solomon Islands while avoiding the limitations of traditional vector control.

Our intervention:

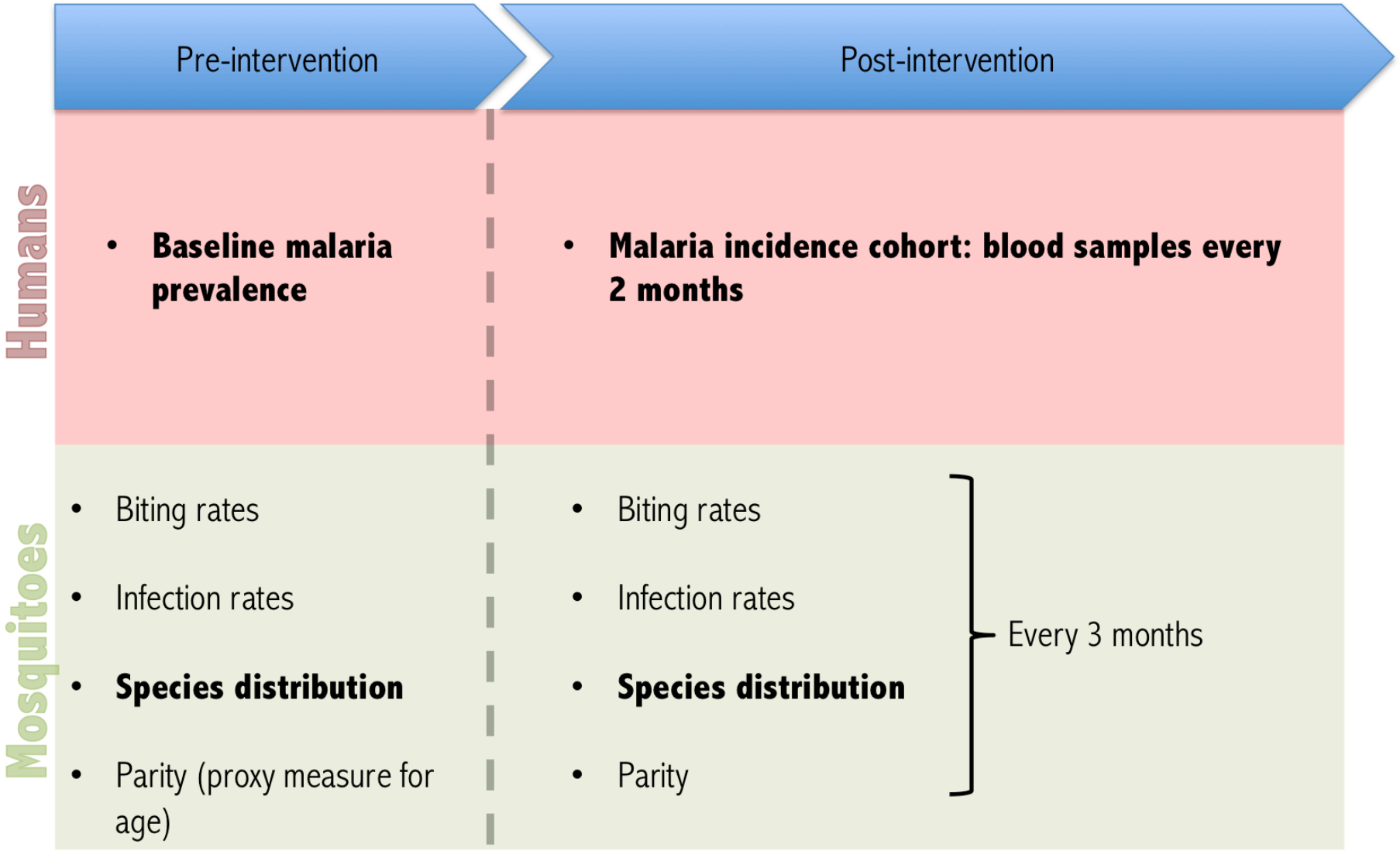
Insecticide-impregnated barriers

Edge of village

IIB

Breeding site

Our study


Pre-intervention
Post-intervention
Humans
• Baseline malaria prevalence
• Malaria incidence cohort: blood samples every 2 months
Mosquitoes
• Biting rates
• Infection rates
• Species distribution
• Parity (proxy measure for age)
• Biting rates
• Infection rates
• Species distribution
• Parity
Every 3 months

Field Work

Blood collection for baseline prevalence

Photograph by Neil Lobo


Recruiting incidence cohort
Photograph by Tom Burkot

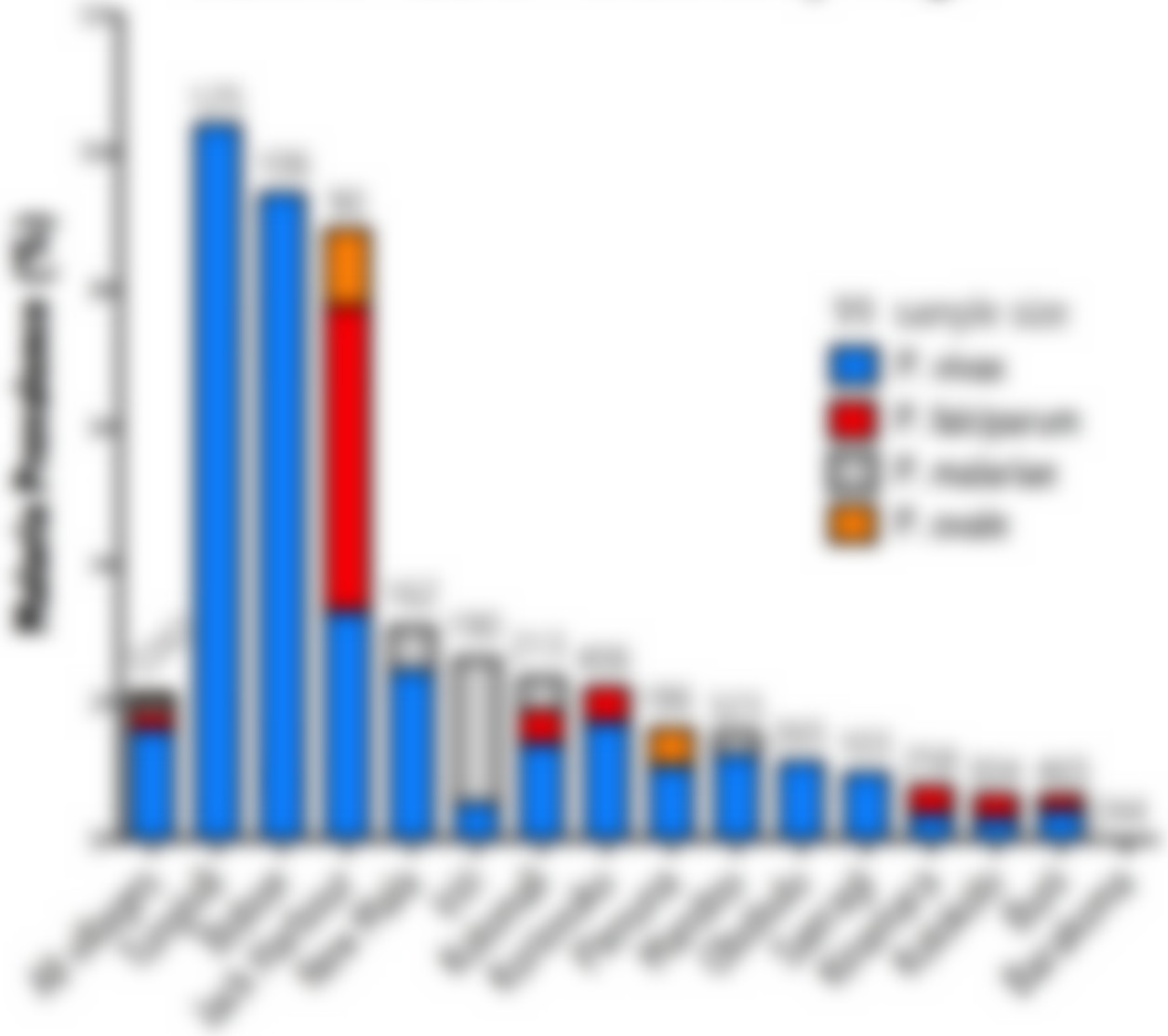
Human landing catches

Photograph by Danyal Odabassi

Constructing insecticide barriers

Results:

Baseline Malaria Prevalence by Village



Results:

Mosquito collections

- Collected in Human Landing Catches
- Identified by ITS2 ribosomal gene sequence

Results:

Mosquito collections

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Conclusions

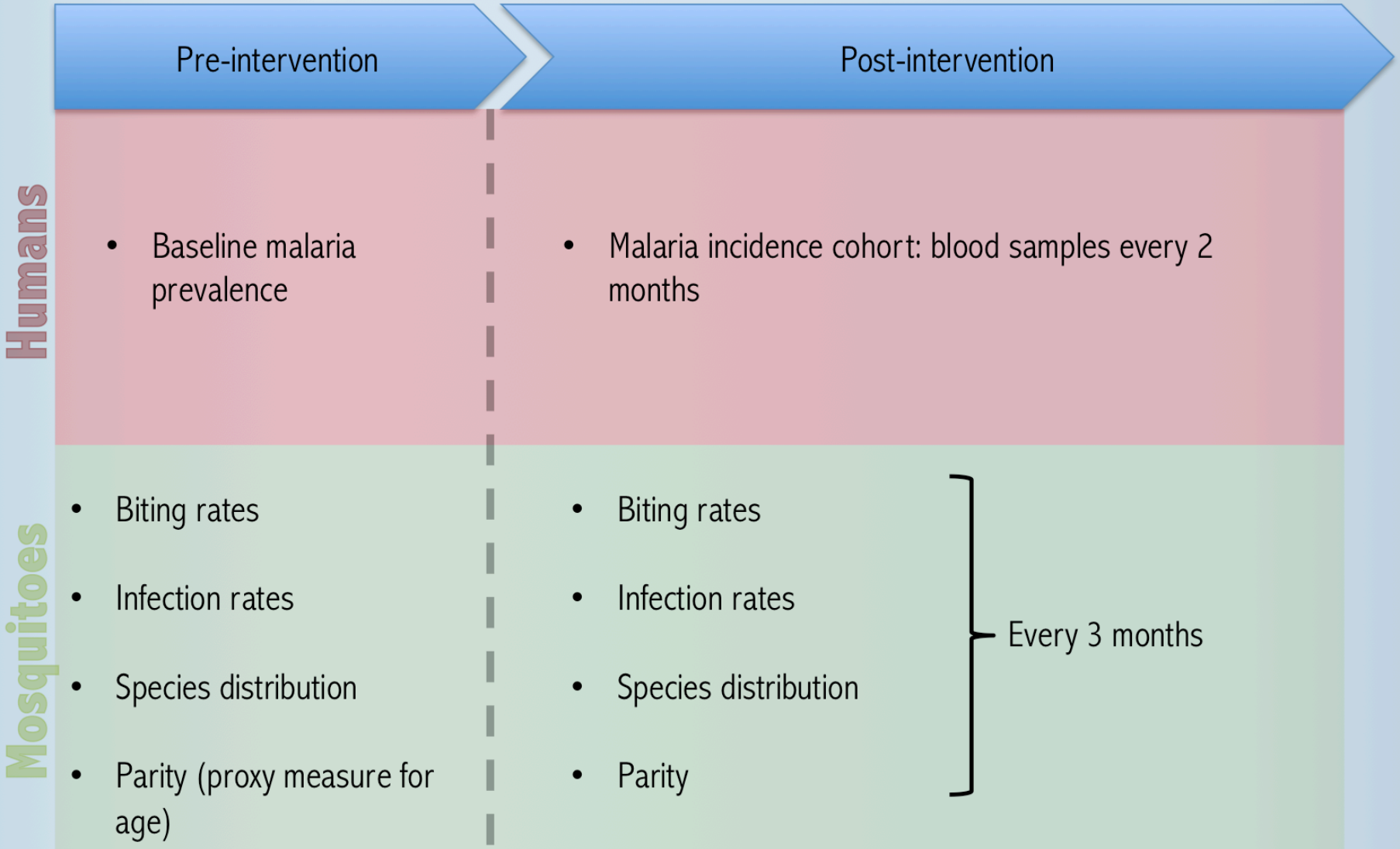
Parasites

- Malaria transmission is low, but persistent in Western Province
- 4 species of human *Plasmodium* found
- Not enough time has passed to make meaningful comparisons between IRS and control villages

Vectors

- A diversity of Anophelines, farauti still the only known vector
- Low abundances except in Jack Harbour, which has higher malaria prevalence and most *P falciparum*

Future Work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Questions?