



NATNAT

Newly Adapted Tools Network Against
mosquito borne disease Transmission

PAPUA NEW GUINEA

IVCC Stakeholder Forum - Liverpool
Wednesday 4th October



PAPUA NEW GUINEA
INSTITUTE OF
MEDICAL RESEARCH



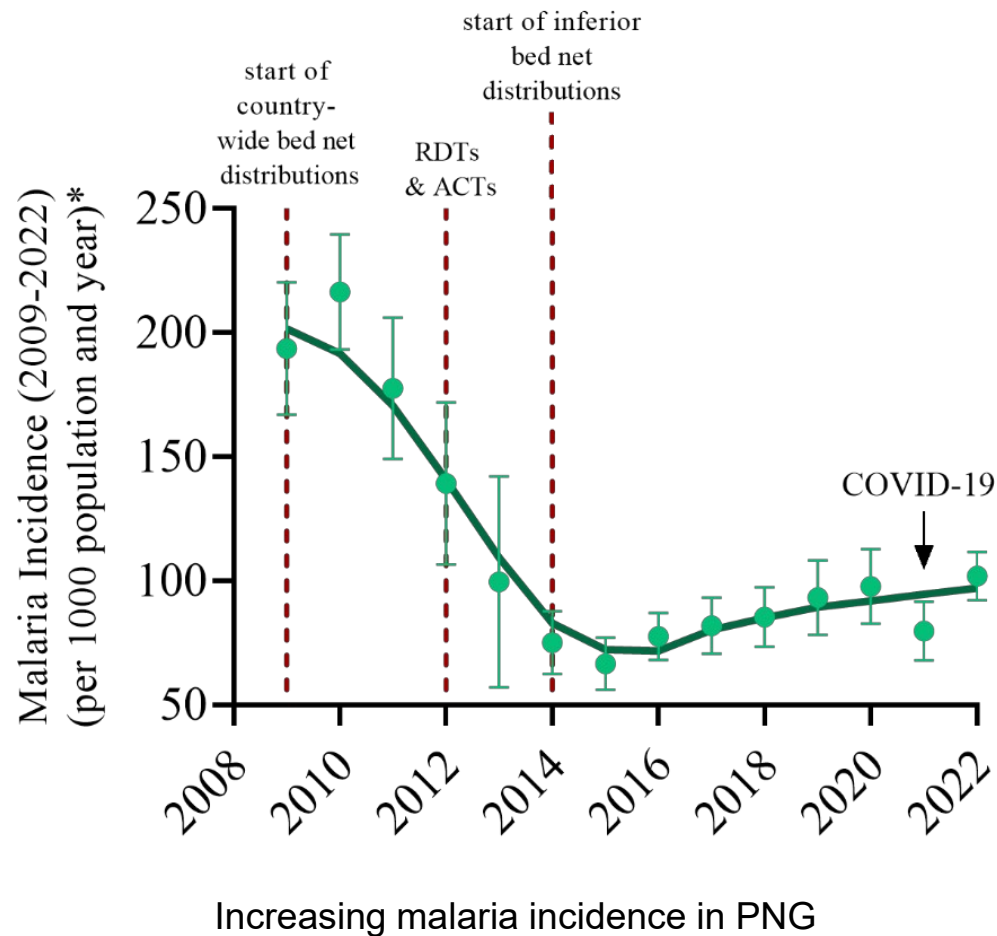
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Malaria & Vector Control in PNG



- PNG has highest burden of malaria in the Western Pacific Region
- Vector control is an important component of malaria control in PNG, and approx. 2 million long-lasting insecticidal nets (LLINs) are distributed in PNG per year
- PNG is facing many challenges related to malaria vector control including diverse vector biting behaviour and deficient vector control tools (VCTs), and malaria case numbers have been increasing in PNG over recent years
- Elimination of malaria in PNG cannot rely on a single vector control approach
- ***Additional, complementary vector control tools are needed to achieve sustained reduction of malaria***

Priority Vector Control Tools (VCTs)



**Residual
Spraying
(RS)**



**Larval Source
Management
(LSM)**



**Spatial
Emanators
(SE)**



**Long Lasting
Insecticidal
Nets (LLIN)**

CORE Objectives



1. Strengthen laboratory, semi-field and field capacity to test new VCTs in PNG



2. Conduct rigorous field evaluations of new VCTs



3. Investigate the community and health system acceptability and cost analysis of new VCTs



4. Support a NMCP-led formal network for vector control tools and interventions in PNG

1. Strengthen laboratory, semi-field and field capacity to test new VCTs in PNG

- Extend the existing PNGIMR Entomology laboratory facilities and establish a semi-field testing site





1. Strengthen laboratory, semi-field and field capacity to test new VCTs in PNG

PNGIMR Belna Natnat Centre - Mosquito Research Facility



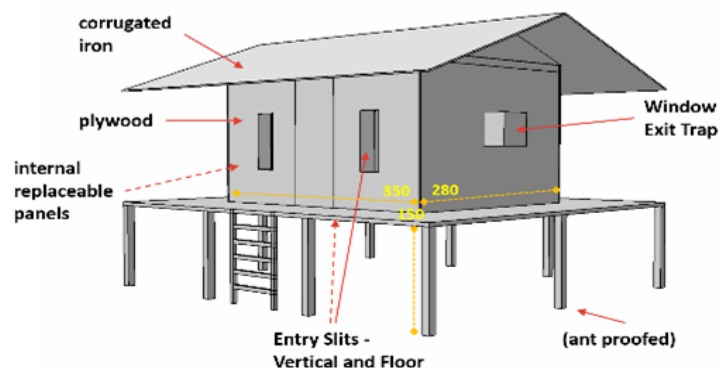


1. Strengthen laboratory, semi-field and field capacity to test new VCTs in PNG



Insectary - Two insectary rooms, field & insectary laboratories, and bioassay room.

Semi-field tunnel cage



Six 'PNG-style' experimental huts currently being built in the community to test VCTs against wild-type mosquitoes.



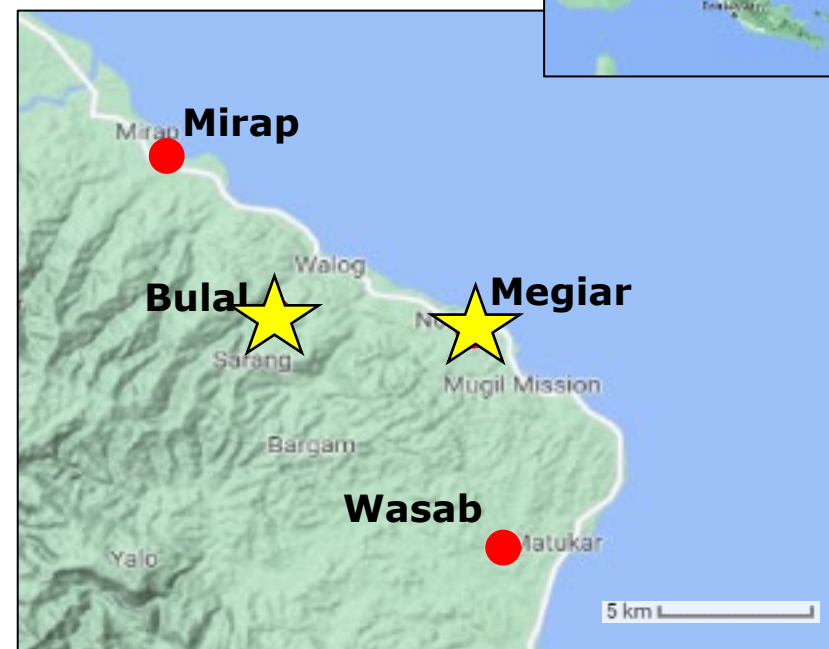
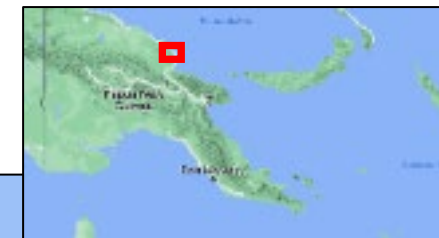
2. Conduct rigorous field evaluations of new VCTs

Small-scale, field-based evaluation of residual spraying in Madang

completed November 2022

Conduct a residual spray study with Fludora Fusion® in a village setting in PNG to investigate the impact of spraying on malaria and vector indicators.

- **Interrupted Time Series Study Design:**
 - 12m pre-IRS and 12m post-IRS monitoring
 - ❖ Mosquito population surveys – every 2 months
 - ❖ Malaria surveys (cohort) - monthly
- Round 2 spraying of 2 control and 2 intervention villages
- 12m post intervention to assess impact of repeated annual spraying

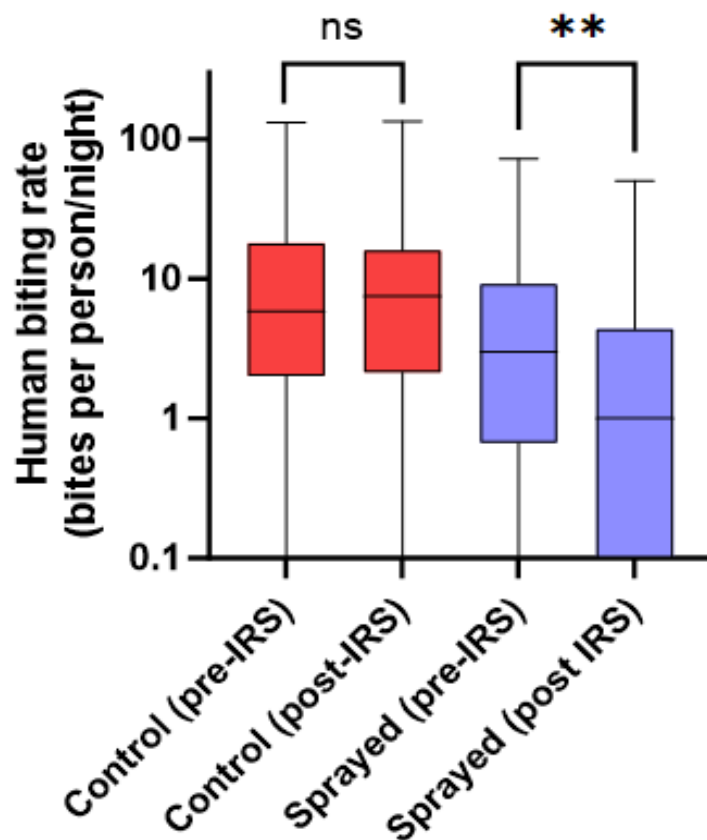


- ★ 2 IRS intervention villages – 330 households
- 2 control villages – 311 households

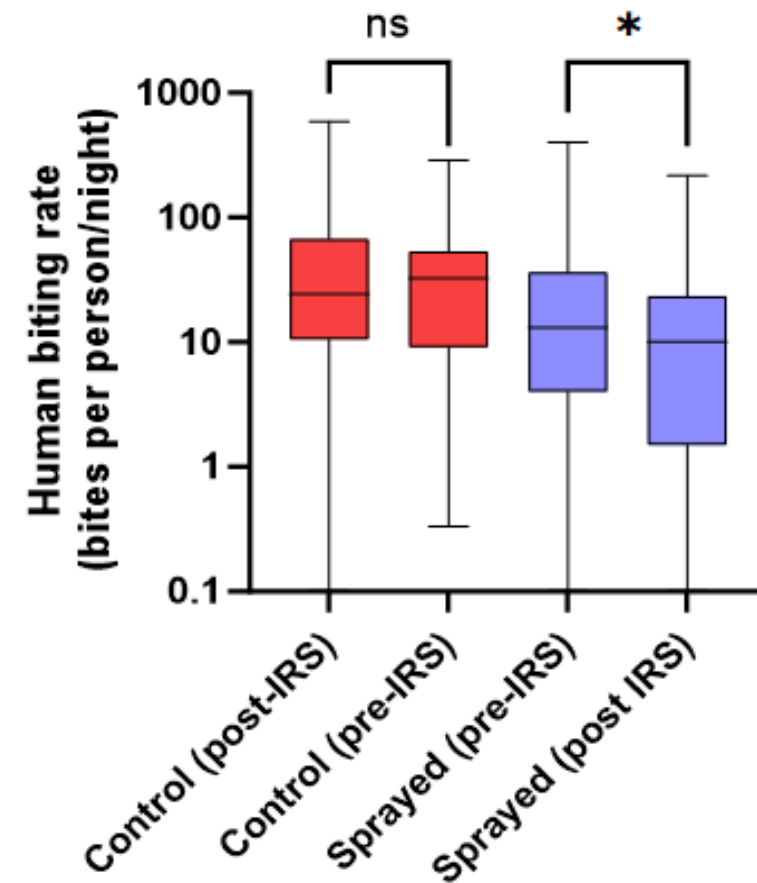
2. Conduct rigorous field evaluations of new VCTs

Vector surveys preliminary analysis - HLC (biting rates)

- Full phenotypic datasets available for HLC and barrier screen
- data prepared for formal statistical analysis
- Sample processing for molecular analysis ongoing
- Preliminary analysis indicates potential **3-fold reduction** of indoor biting rate



Indoor biting



Outdoor biting

2. Conduct rigorous field evaluations of new VCTs



Spatial Emanator studies

Objective: Evaluate the efficacy and acceptability of spatial emanator devices to reduce mosquito biting outdoors and indoors in a village setting in PNG



Larviciding studies

Objective: Evaluate the efficacy and acceptability of larvicide products to reduce *Anopheles* mosquito larval abundance in PNG habitats

Tunnel



Experimental Huts



Field





3. Investigate the community and health system acceptability of VCTs

Well, people individually use repellents, mosquito coils and are beginning to screen the windows, but you know, the issue is that while individuals utilize this, the government does not have a policy on them. So again, things like mosquito coils are freely available in, shops plus repellents. But apart from that, you know, it's the government policy, we don't have a policy on the use of these other vector control tools." - National Malaria Control Program, NDoH Partner



We need to be educating users of benefits of VCT, it is very important. Convince the people so they will not have doubts on the introduction of new VCTs. – Government Partner, National Department of Health

Focus Group Discussions – North Coast Madang, PNG



4. Support a NMCP-led formal network for VCTs and interventions in PNG

STEP 1

December 2020

Residual Spraying Master Trainer Course

Port Moresby



STEP 2

October 2021

Refresher & Spray Team Training

Small scale field study (NATNAT) - Madang



STEP 3

August 2022 – May 2023

**Master Trainer-led Workshop
Pilot Implementation Trial Training
IRS Pilot Implementation May 2023**



IRS pilot implementation led by the New Ireland PHA & NMCP with technical inputs and funding from NATNAT & RAM.

Piloted a model of PHA-led programmatic IRS in Lemakot LLG (Ward 9) spraying approx. 780 HH (May 2023) achieving >90% coverage in all villages.



Report dissemination underway.



4. Support a NMCP-led formal network for VCTs and interventions in PNG

Inaugural Vector Control Network Stakeholder Workshop – March 2023

- Under the leadership of the National Malaria Control Program, the NATNAT Project conducted a vector control stakeholder workshop in Madang in March 2023
- 35 attendees from national, provincial, private, academic and NGO stakeholders



- Mapping of current vector control activities, identifying gaps and shared challenges and exploring priorities for future activities and collaborations
- Plans for next Vector Control Stakeholder Meeting in mid-November 2023

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