Optimising the deployment of vector control tools against malaria

https://mint.dide.ic.ac.uk

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No longer a one size fits all for vector control

Vector control interventions

Then - Only ITNs and/or IRS
Now - Pyrethroid resistance means now multiple ITNs classes, different IRS
Future - Novel LLINs, IRS, ATSBs, LSM, spatial repellents …………

Efficacy and effectiveness varies between sites

- RCTs and pilots are costly and time consuming and cannot be done everywhere
- Experimental hut trials show how entomological impact varies
- More effective products are often more expensive
- Budgets limited

Use of mathematical models

- Models parameterized with hut trial data can recreate RCT results
- Extrapolate results from RCTs to different locations with different entomology, epidemiology and history of malaria control
Move from “do they work” to “how well do they work”

Layering interventions essential to achieve malaria control goals

- Cost must always be considered
- Develop a framework to support evidence-base decision making
- Cost effectiveness analysis could be considered

Important to parameterise with quality local data

Local entomology - level of pyrethroid resistance
- % mortality in discriminating dose assay most widely used
- Assay has high measurement error

Local epidemiology, history of vector control, costs

Currently model considers

- Pyrethroid only ITNs
- Pyrethroid-PBO ITNs
- annual IRS (long-lasting)
This tool is designed to help National Malaria Control Programs explore the most cost-effective option of deploying current World Health Organization (WHO) recommended mosquito net and IRS products for malaria control.

In this tool, a project is a collection of regions and a region is defined as a management unit - this could be an administrative unit, province, or village. For each region defined in the tool, there is a set of outputs summarizing the impact and cost effectiveness of intervention packages.

IRS is very local and usually conducted in smaller regions, often in provinces or districts. The model assumes that IRS is applied at random to the population so it is more advisable to create separate IRS reports and non-IRS reports for this assessment and adjust population size accordingly.

For further guidance please see the User Guide in English or en français.

Create a project to get started

<table>
<thead>
<tr>
<th>Name</th>
<th>Project name</th>
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<tbody>
<tr>
<td>Regions</td>
<td>First region, second region</td>
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Add multiple regions above (separate by commas). You can always add and remove regions later.
Setup baseline

Mosquito Inputs

- Preference for biting indoors: High
- Preference for biting people: Low
- Level of pyrethroid resistance: 60%
- Evidence of PBO synergy: Yes
- Current malaria prevalence: High
- Seasonality of malaria: Low - less than 10% of children under 5 years have malaria
- Medium - approximately 30% of children under 5 years have malaria
- High - approximately 65% of children under 5 years have malaria

Past Vector Control

- ITN population usage in last survey (%): 40%
- What was the estimated coverage of spray campaign (last year): 0%

How to use these settings
Work in progress - feedback is very welcome!!

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Thank you
Acknowledgements – these and many many more

Imperial College London:
Ellie Sherrard-Smith, Ben Lambert, Rebecca Nash, Mara Kont, Joe Challenger

Centre National de Recherche et de Formation sur le Paludisme:
Sagnon N’Fale, Antoine Sanou, Moussa Guelbeogo et al.

Liverpool School:
Hilary Ranson, Phil McCall, Geraldine Foster, Rosemary Lees

Centre Recherches Entomologiques de Cotonou:
Corine Ngufor

London School:
Mark Rowland, Natasha Protopopoff, Raph N’Guessan,
RAFT team – Jo Lines, Sian Clarke et al.

Uni Abomey-Calavi:
Luc Djogbénu

National Institute for Medical Research:
Alphaxard Manjurano