



Partnership To End Malaria

30 January 2019

Evaluation of Pirmiphos-Methyl Efficacy in Experimental Huts with Partially Sprayed Surfaces Against Natural Populations of *Anopheles gambiae* in Ghana

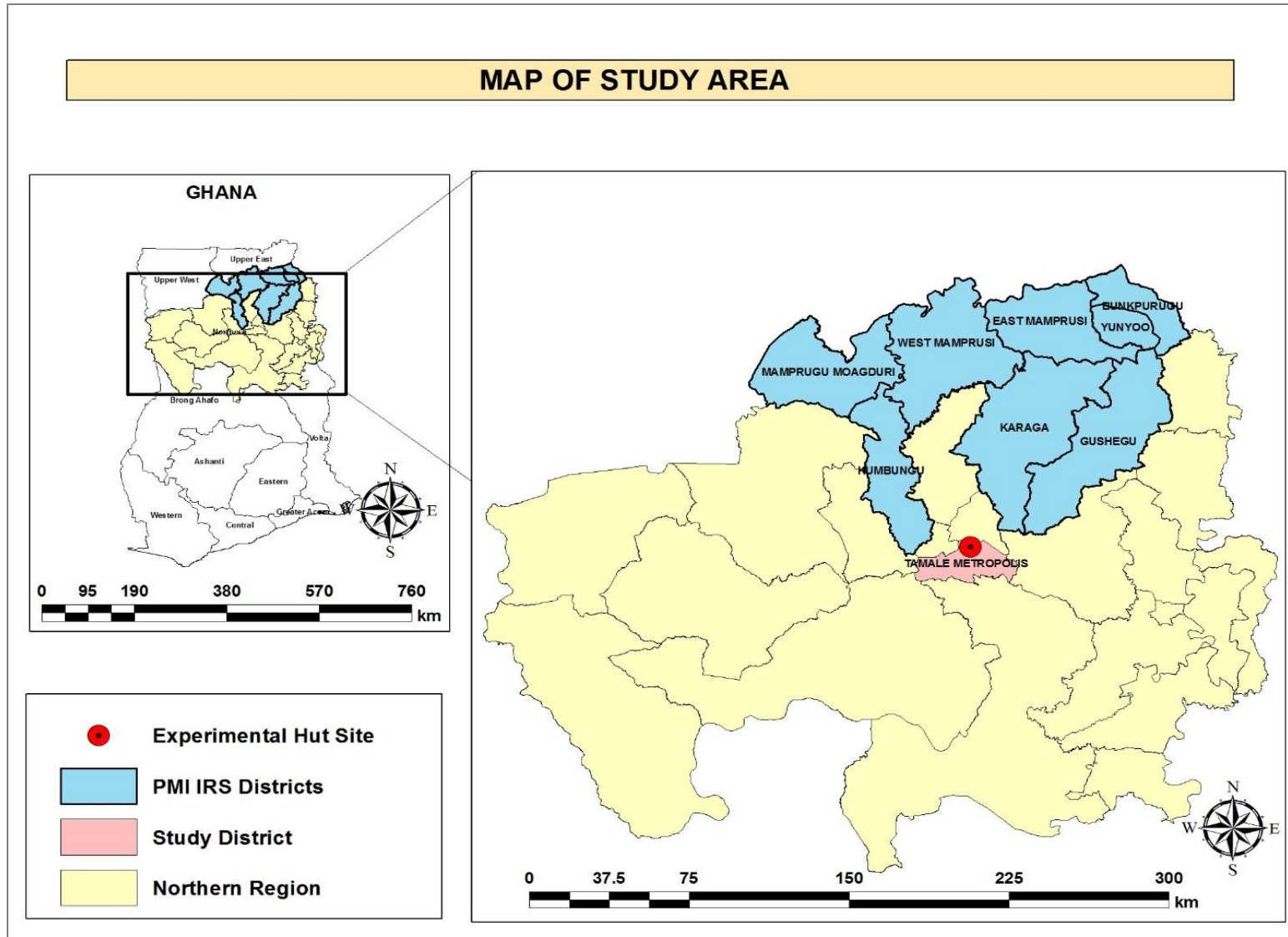
Aklilu Seyoum

The U.S. President's Malaria Initiative (PMI) VectorLink Project

Introduction

- Indoor Residual Spraying for Malaria Vector Control
- Insecticide Resistance
- Insecticides for IRS
- Scale Down of IRS Coverage
- Cost-Saving Approaches
- Partial Spraying

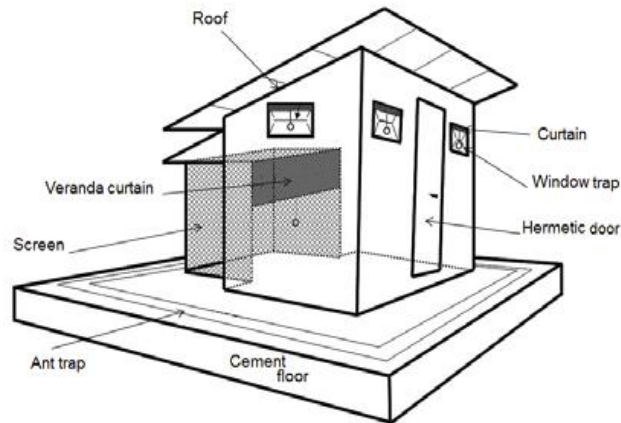
Study Area



Experimental Huts and Study Design

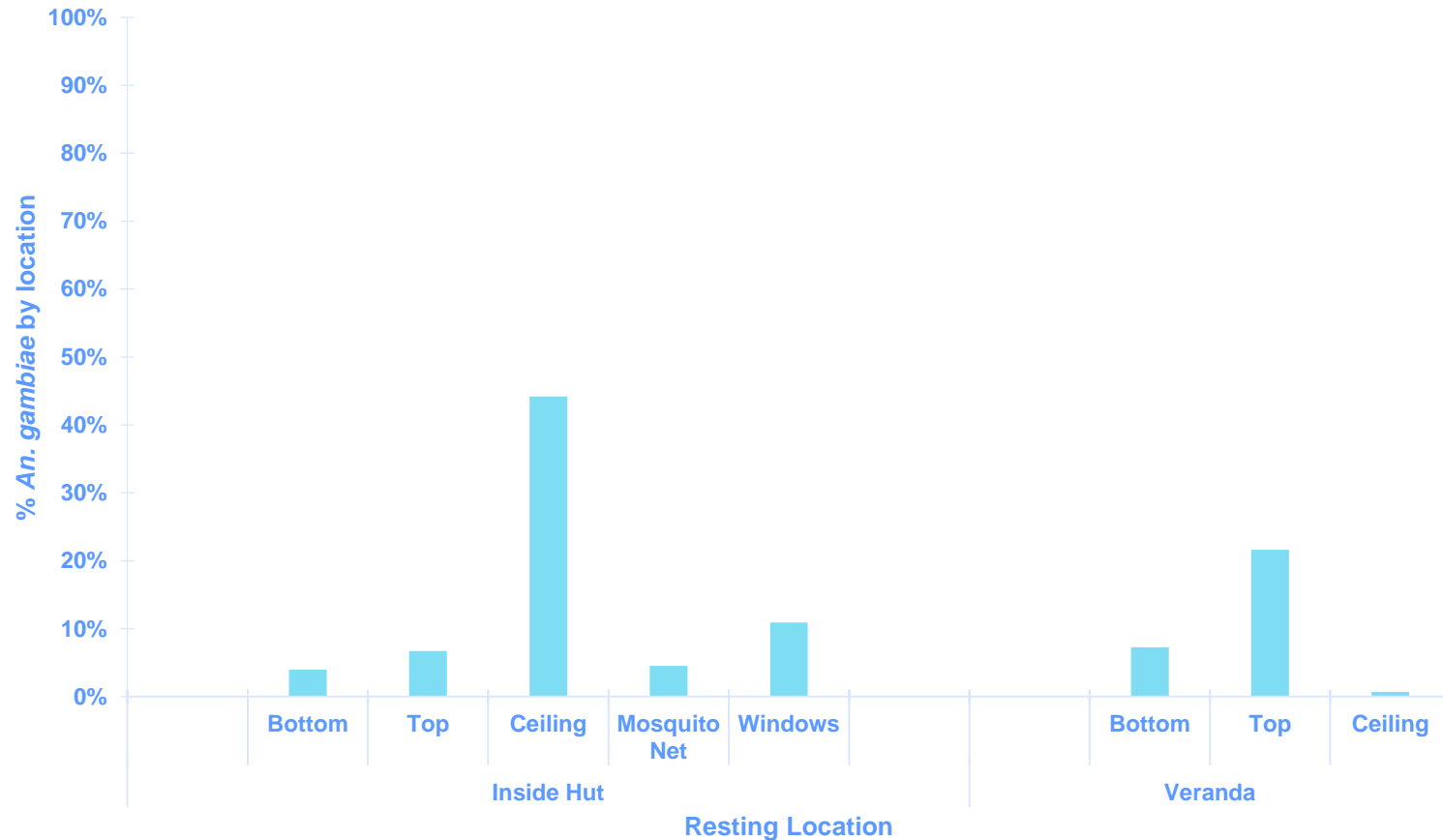


- June – November, 2018
- Twelve Experimental Huts
 - Two per treatment arm & control
 - Fully Sprayed
 - Unsprayed
 - Upper half
 - Upper half + Ceiling
 - Lower half
 - Lower half + Ceiling
- Baseline data collection
- Spraying
- Post-intervention data collection
- Volunteers slept in the huts
- Rotated among huts each night
- Mosquito collections
 - Scored as dead/ alive
 - Mortality main outcome
- Data analysis



Results and Discussions

Figure 1: *Anopheles gambiae* s.l. Collected by Location in experimental huts at the Baseline



- A total of 550 *An. gambiae* s.l. mosquitoes were collected at the baseline
- Ceiling is the most preferred resting location inside the hut & top part from the Veranda

Figure 2. *Anopheles gambiae* s.l. Mortality in Experimental Huts with Different Spraying Scenarios at the Post Intervention Period

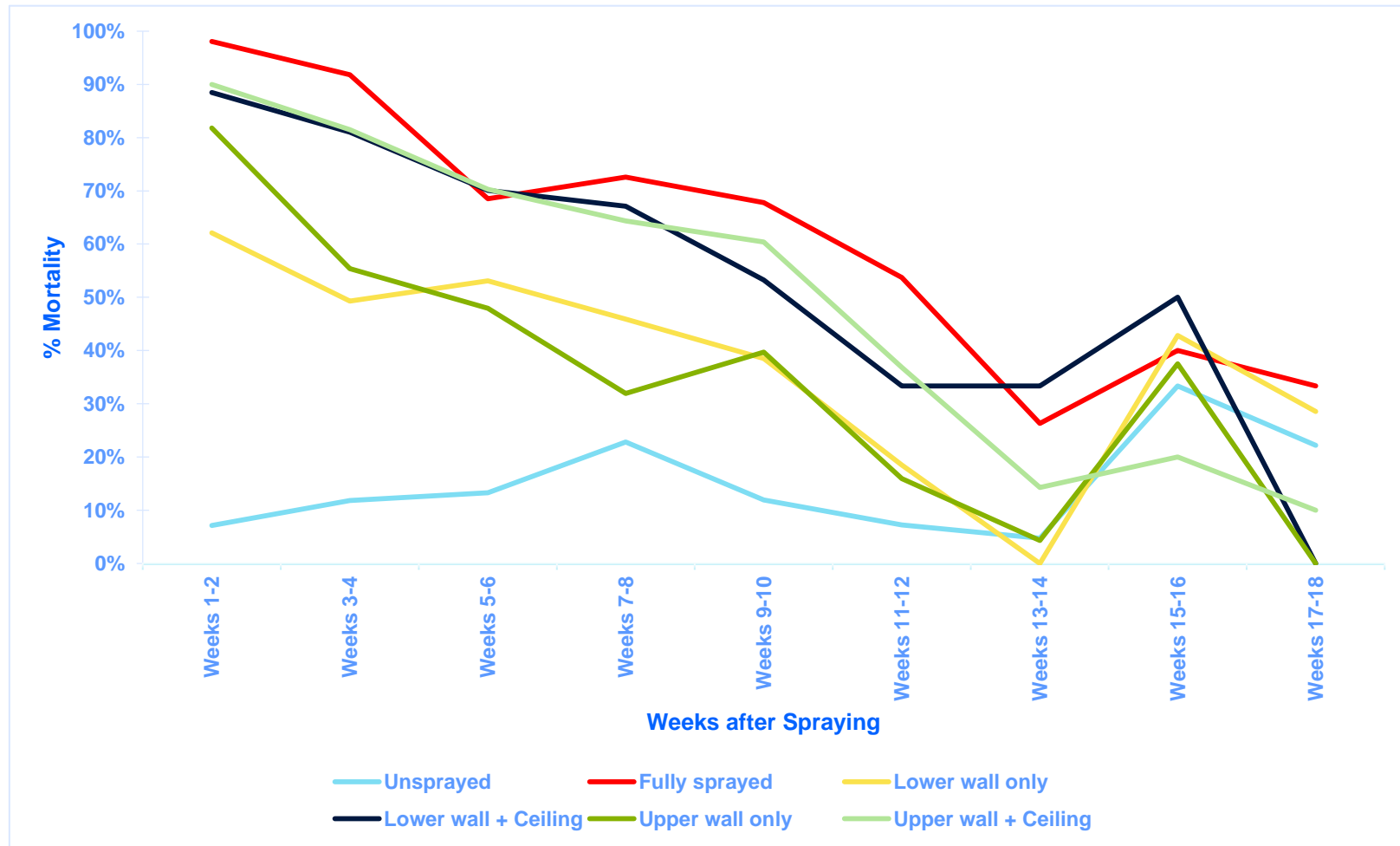


Table 1: Mean Percentage Mortality of *Anopheles gambiae* s.l. In the Nine Rounds of Post-Intervention Period by the Treatment Arms

Hut Treatment	# Alive (morning)	# Dead (morning)	Total collected	# Alive (24 hrs.)	# Dead (24 hrs.)	% Mortality (over all)	P-values
Unsprayed	1530	16	1546	1322	208	14.5	<0.001***
Fully sprayed	429	613	1042	242	187	76.8	Comparator
Lower wall only	765	232	997	541	224	45.7	<0.001***
Lower wall + Ceiling	475	395	870	277	198	68.2	0.15
Upper wall only	646	169	815	482	164	40.9	<0.001***
Upper wall + Ceiling	619	428	1047	351	268	66.5	0.13

Conclusion and Recommendation

- Partial spraying of huts provides similar level of mortality to full spraying when ceilings are included
- Substantial cost-saving for IRS
- Small scale field pilot study



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Thank you, find out more
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