



Multisectoral Malaria Project; Malaria and Rice Agriculture, Karonga, Malawi

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Presentation Outline

- Background/Overview
- Objectives
- Methodology
- Results
- Conclusion

Background/overview of the project

- Malaria is a major public health problem in Malawi, accounts for 36% of all OPD visits and 1.1% of all global malaria deaths.
- Location of vector breeding, relative to human populations, is one of the factors that affect malaria parasite transmission.
- Irrigation agriculture can create favorable breeding habitats for mosquitoes at the same time promotes economic growth, enhance food security and alleviate poverty.
- Studies in sub-Saharan Africa including Malawi have shown increase in malaria risk and malaria vectors abundance associated with rice irrigation.
- This justifies need to design and implement interventions that promote growing rice while mitigating the associated malaria risk.

Objectives

To determine malaria risks attributed to agricultural rice production within households:

- To evaluate the effect of proximity of human dwellings (households) to rice irrigation on prevalence of malaria infection among household members in rice irrigation schemes in Karonga district.

**Red shows Karonga District;
blue is Lake Malawi**



Methodology

- Cross-sectional
- Two schemes, two surveys: rainy and dry season
- Data collection:
 - Individual
 - mRDT and Malaria treatment
 - Malaria Disease: Passive case detection
 - Household
 - Geospatial mapping of the villages to determine distance from the scheme
 - Socioeconomic and KAP on malaria



RESULTS



Baseline Characteristics

- Survey One (Dry Season): 445 households
 - **1662** with malaria rapid test done

- Survey Two (Rainy Season): 443 households
 - **1648** with malaria rapid test done

Individual characteristics	Survey One (n=1,698)	Survey Two (n=1,658)
Gender		
Male	820 (48.3)	826 (49.8)
Female	878 (51.7)	832 (50.2)
Age group (years)		
< 5 yrs	239 (14.1)	210 (12.7)
5-15 years	530 (31.2)	562 (33.9)
> 15 years	929 (54.7)	886 (53.4)
Slept under LLIN last night		
Yes	1,584 (93.3)	1,592 (96.0)
No	114 (6.7)	66 (4.0)

Malaria Prevalence

Survey One (Dry season)

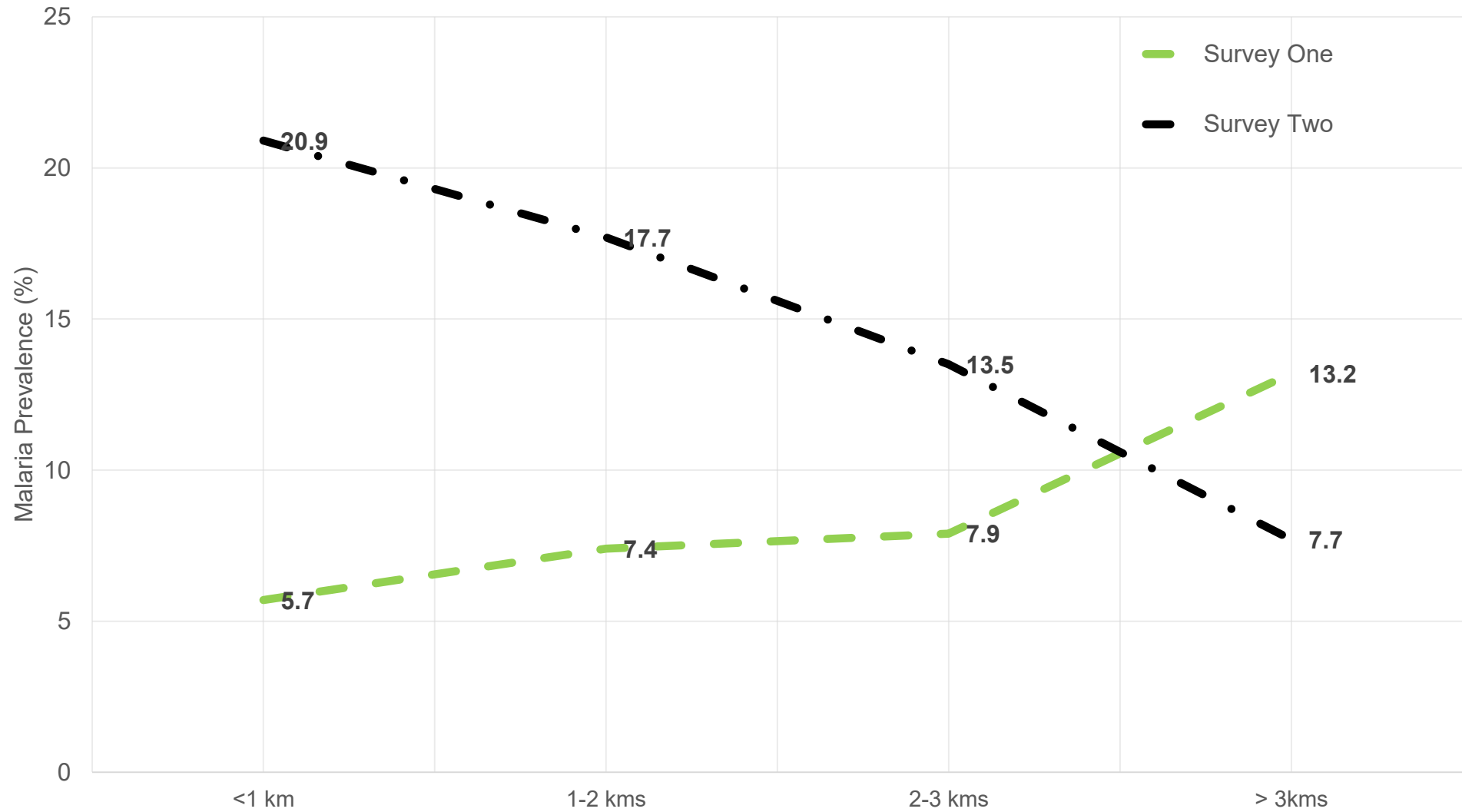
- 7.3% (121/1662) positive
- only 0.7% (13/121) symptomatic

Survey Two (Rainy season)

- 18.5% (305/1648) positive
- 23.8% (71/305) symptomatic

Distribution of malaria infection, comparing survey one and two			
Variable	Participants with malaria infection		
	N (%)		
Distance from the scheme	Survey One	Survey Two	P-value
≤ 1.5 kms	54 (44.6)	237 (77.7)	< 0.001
>1.5 kms	67 (55.4)	68 (22.3)	< 0.001
Scheme			
Wovwe	28 (23.1)	63 (20.7)	0.797
Mphinga	93 (76.9)	242 (79.3)	0.631
Household a member of the scheme			
No	12 (9.9)	59 (19.3)	0.437
Yes	109 (90.1)	246 (80.7)	0.027

Malaria Prevalence by household distance from the scheme



Conclusions

- Malaria infection distribution between the surveys
 - Significant increase in prevalence of malaria infection from Survey One (Dry season) to Survey Two (Rainy season).
 - Significant differences observed in the distribution of infected individuals by distance of their residence from the scheme (residents of homes closer to the scheme had higher rate of infection than those beyond 1.5 kms in Survey Two compared to Survey One where residents closer to the scheme had lower infection rate).
 - Mphinga scheme had significantly more infected individuals than Wovwe scheme in both surveys
 - No difference in malaria infection between residents of households that were members of the scheme compared to non-scheme members.

Conclusion

- Increased odds of malaria infection
- a resident of Mphinga scheme
- school age child aged 5-15 years.
- Decreased odds of infection
- reported use of LLIN the previous night reduced the odds of testing malaria positive.



Way forward

- Analyze the data further to explain the findings for the dry season data collection
- Implement some of the recommendations of the study:
 - SBCC targeting school going children (5–15-year-olds) and the communities
 - Alternating Wetting and drying

Questions

Thank You

