

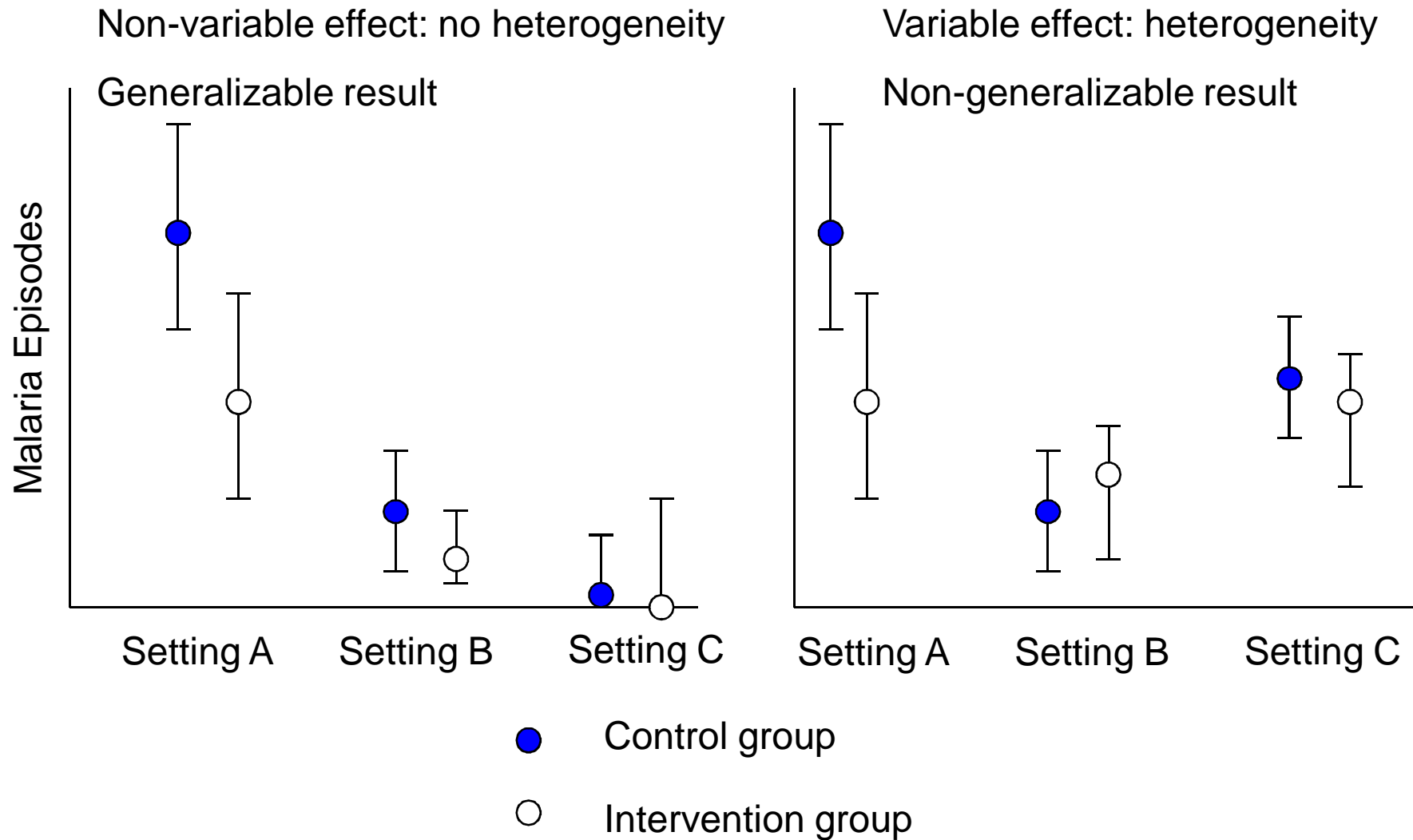
Scenarios to consider for the impact of partially efficacious malaria vaccines on malaria epidemiology in different endemic settings

1. Will trial results be generalizable?
2. Changing epidemiology of malaria

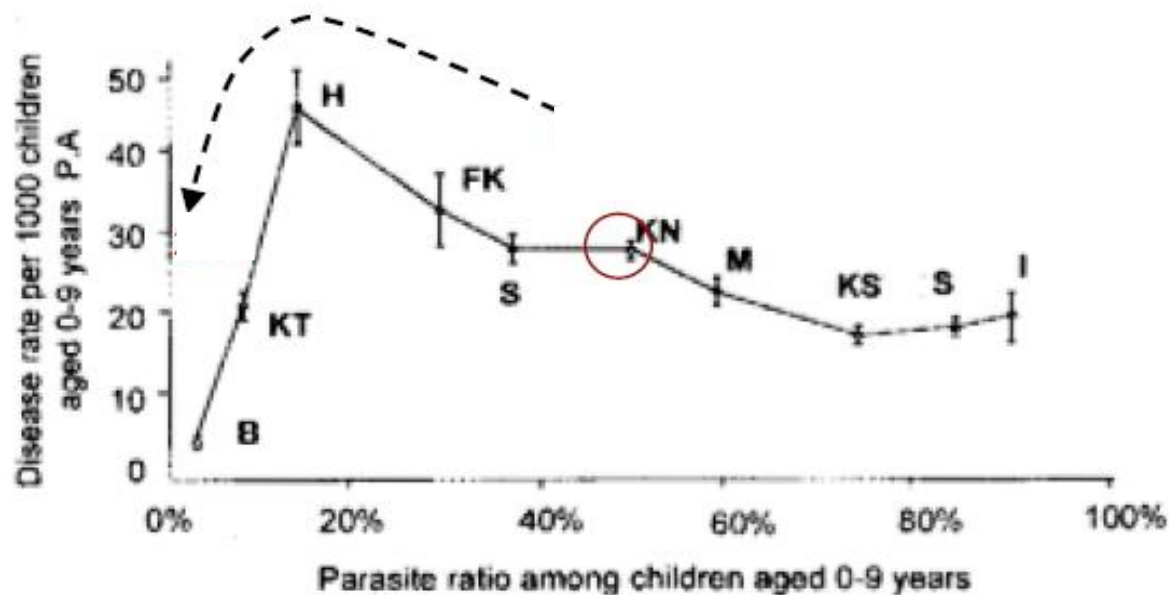


Philip Bejon
KEMRI, Kilifi, Kenya & Oxford University

Generalizability

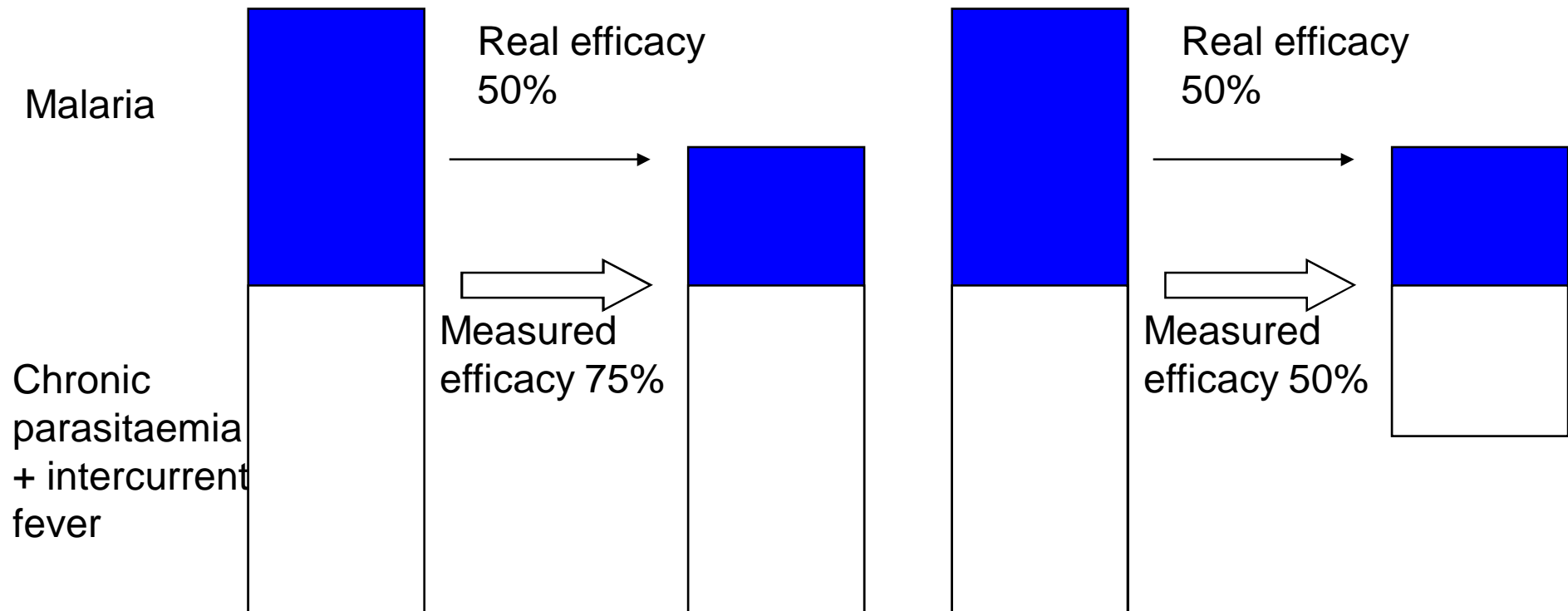


Non-linear relationship between parasite prevalence and rates of malaria episodes

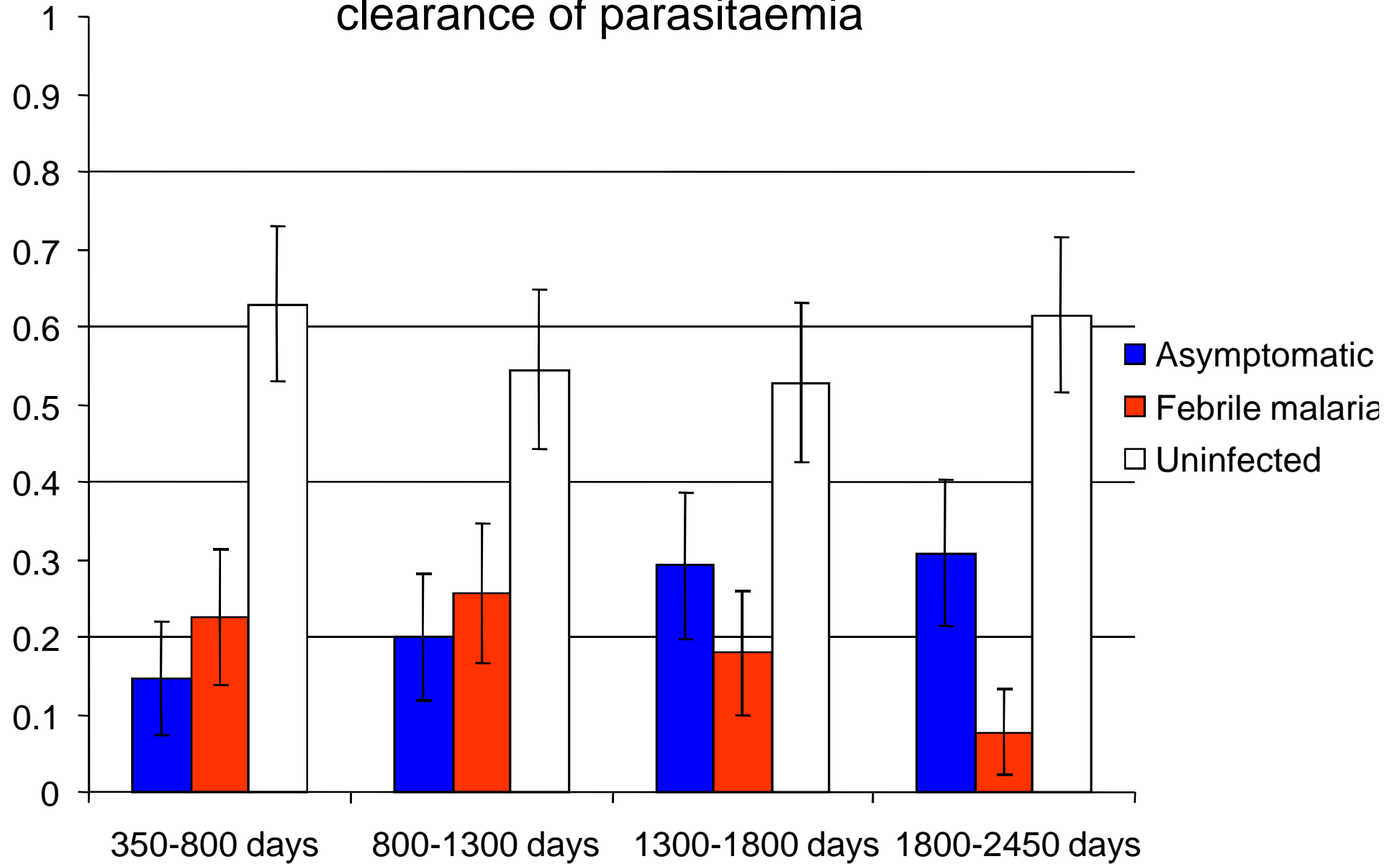


Marsh & Snow

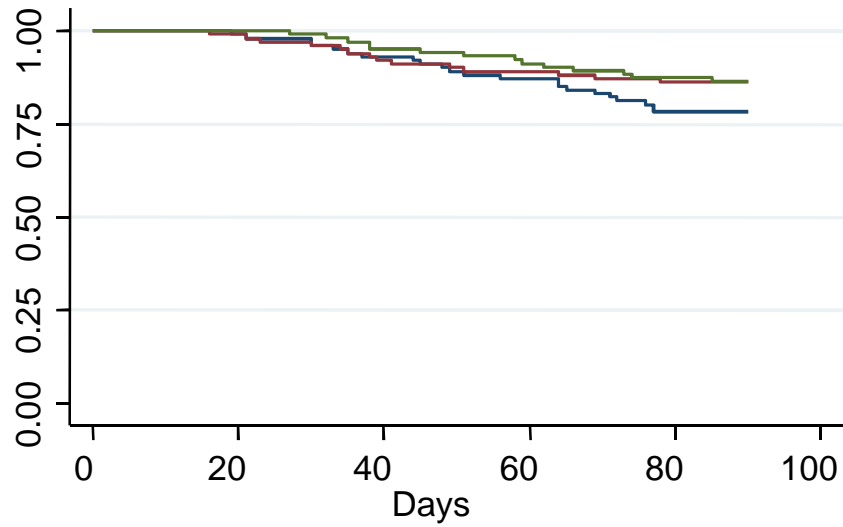
Definition of malaria



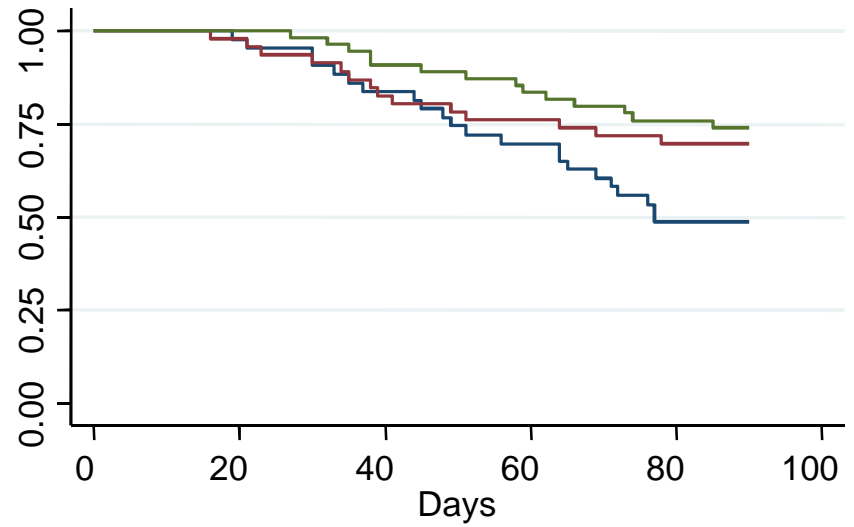
Malaria reinfection after clearance of parasitaemia



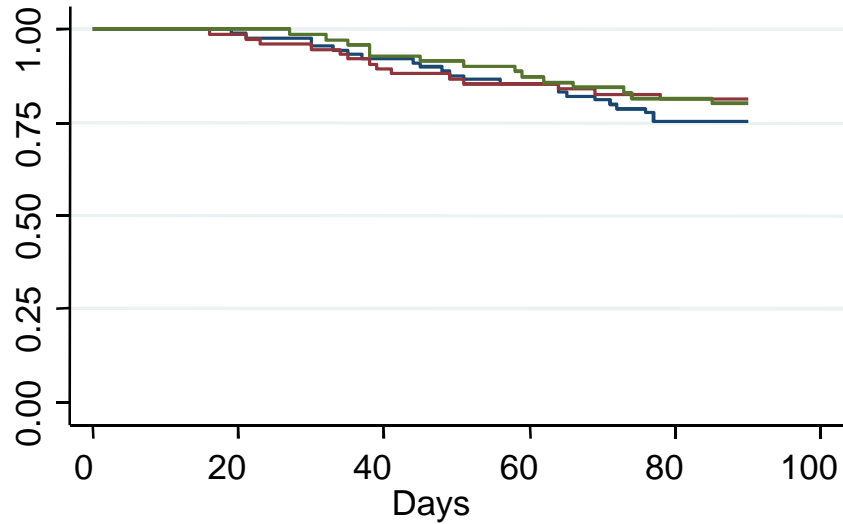
All subjects



Infected children only



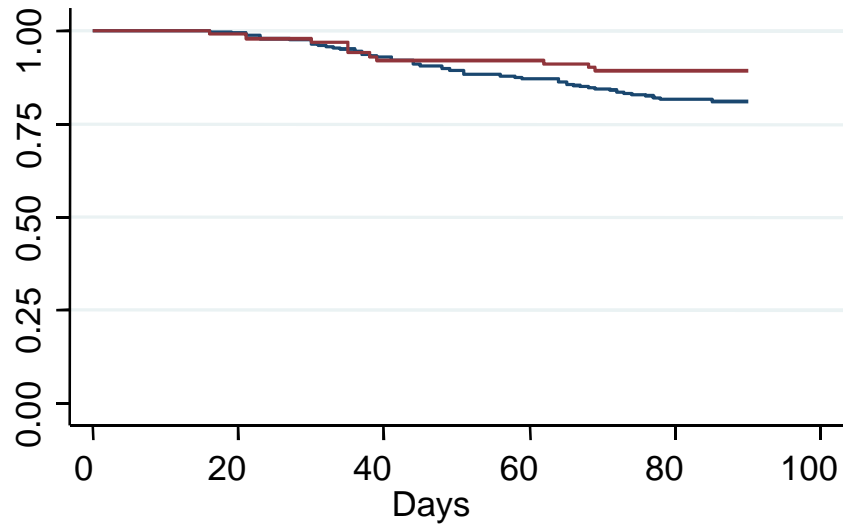
Febrile malaria and uninfected children



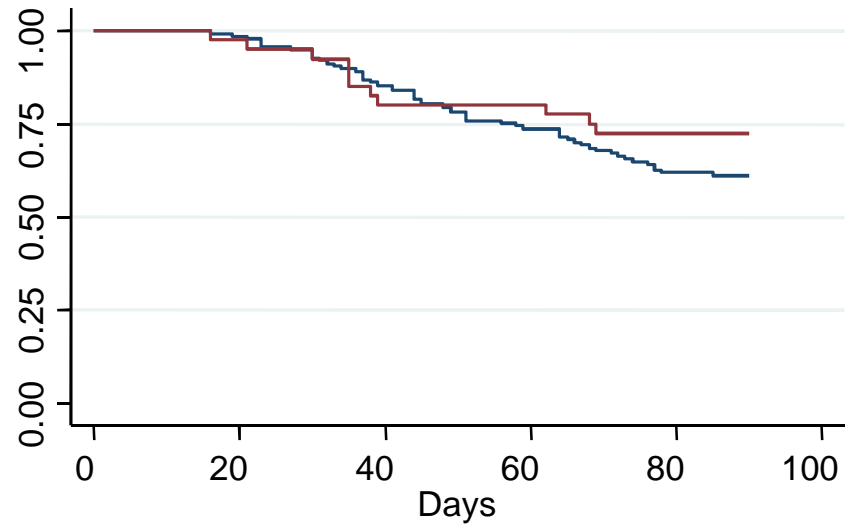
A4 antibodies

- Lower tertile
- Middle tertile
- Higher tertile

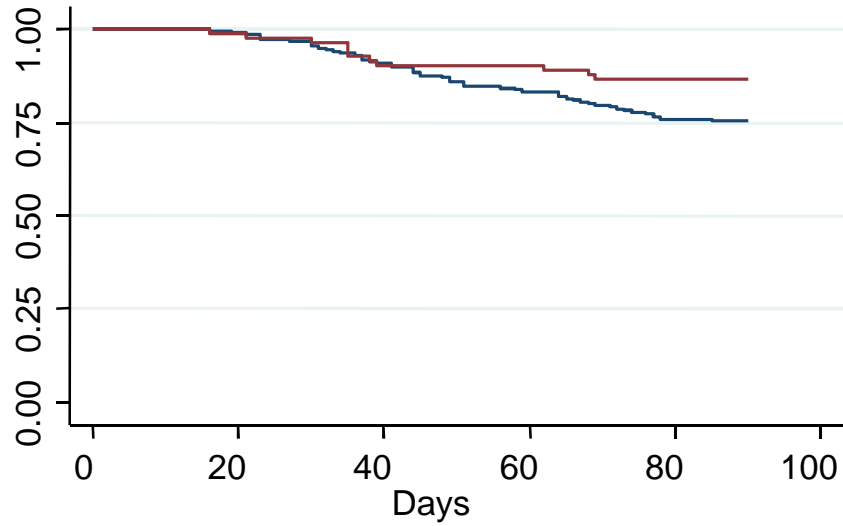
All subjects



Infected children only



Febrile malaria and uninfected children



Bed net status

- Bed net
- No bed net

Vaccine cf ITN

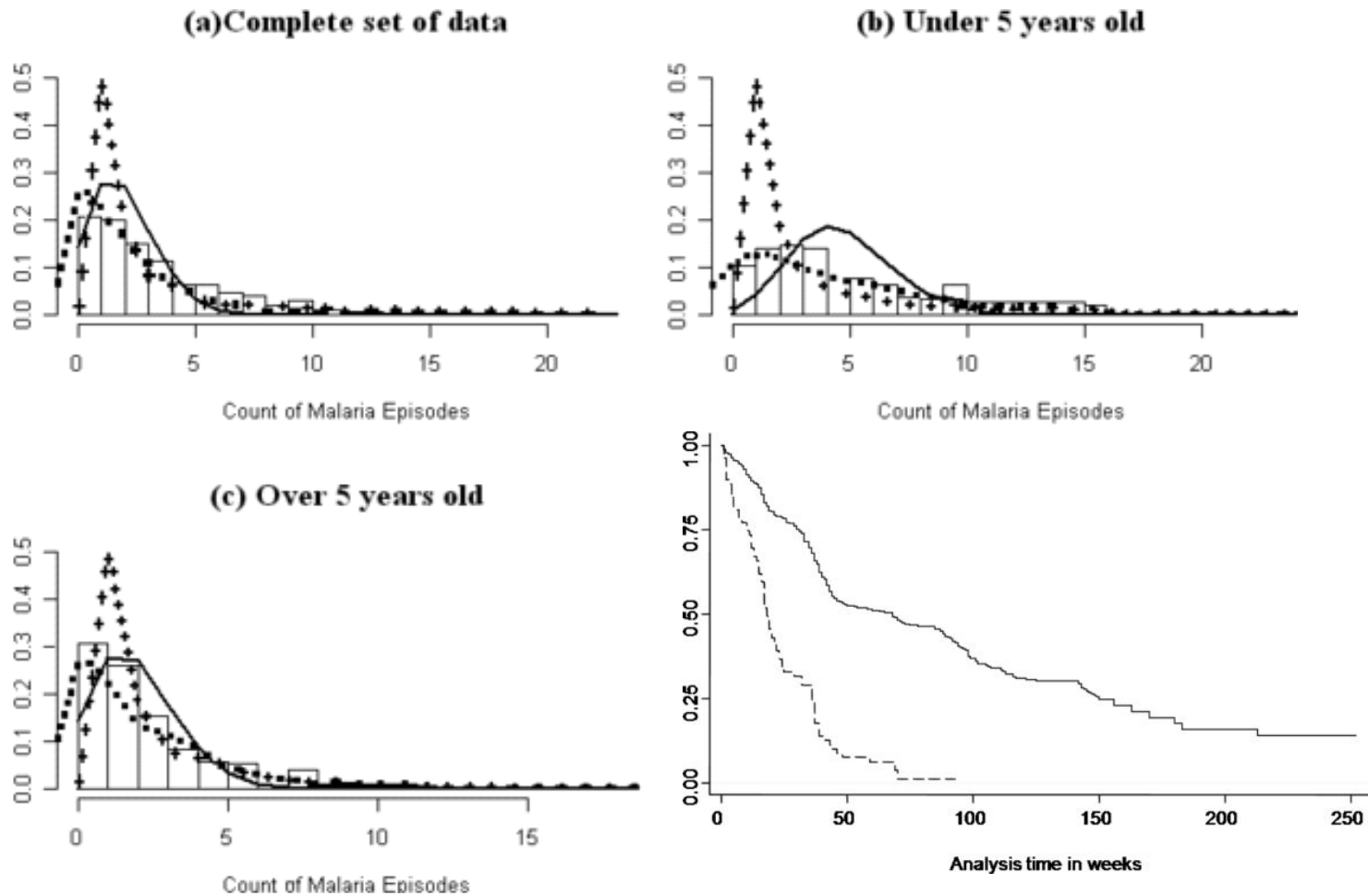
	ITN	RTS,S
Para. Prev	13% (4-20)	20%
Feb Mal.	50% (40-60)	30% (20-50)
Acq. Infection	*	66% (40-80)
Severe dis	50%	60% (16-80)
Mort. (all)	17%	*

ITNs

- Heterogeneity chi sq =1.5, p=0.8
- Efficacy correlated with EIR (r=0.8, p=0.05)
- Relative efficacy lower at high EIR

Lengeler et al.

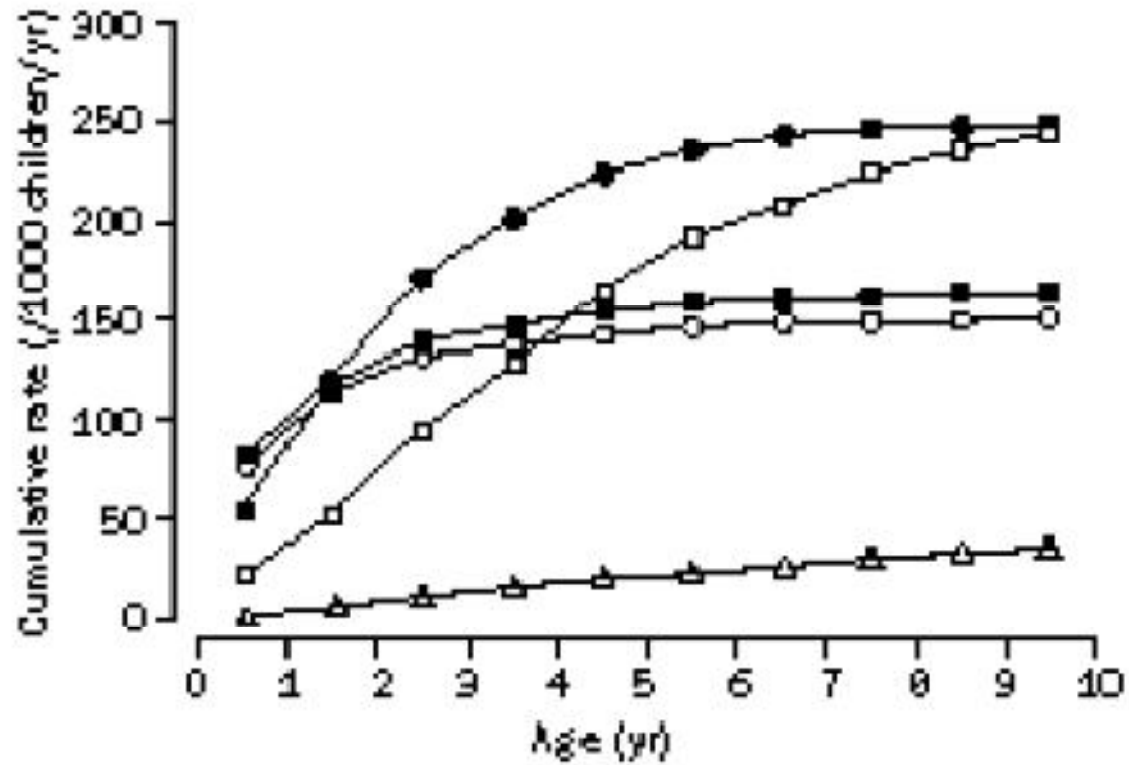
Life time experience of febrile malaria episodes



Conclusion re Generalizability

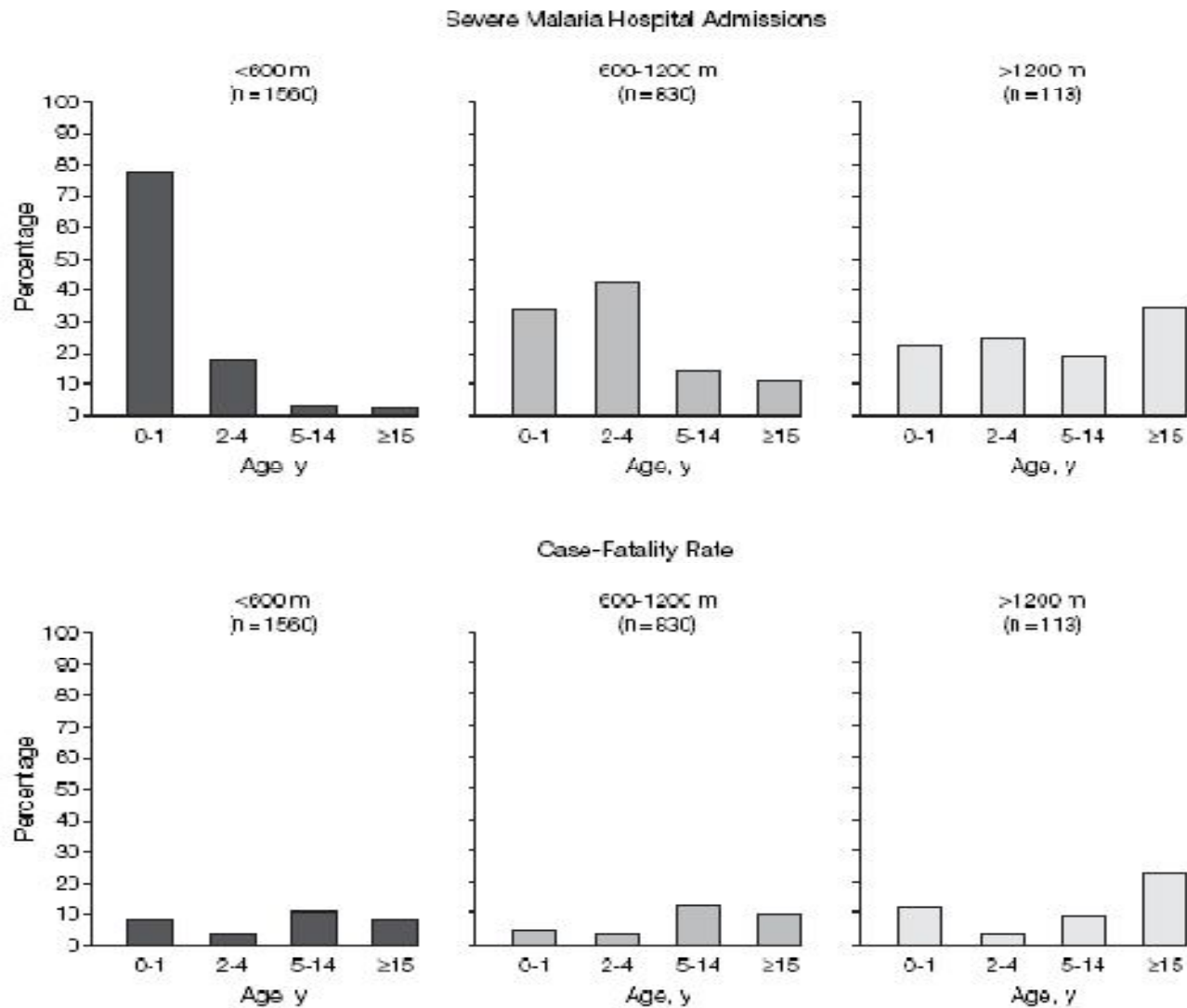
- If choose sites representative of Sub-Saharan Africa, will probably be good generalizability of results.
- Definition may be not overly important for relative efficacy, unless efficacy said to be greater for severe disease or febrile malaria.

Effect on Epidemiology



Marsh, Snow

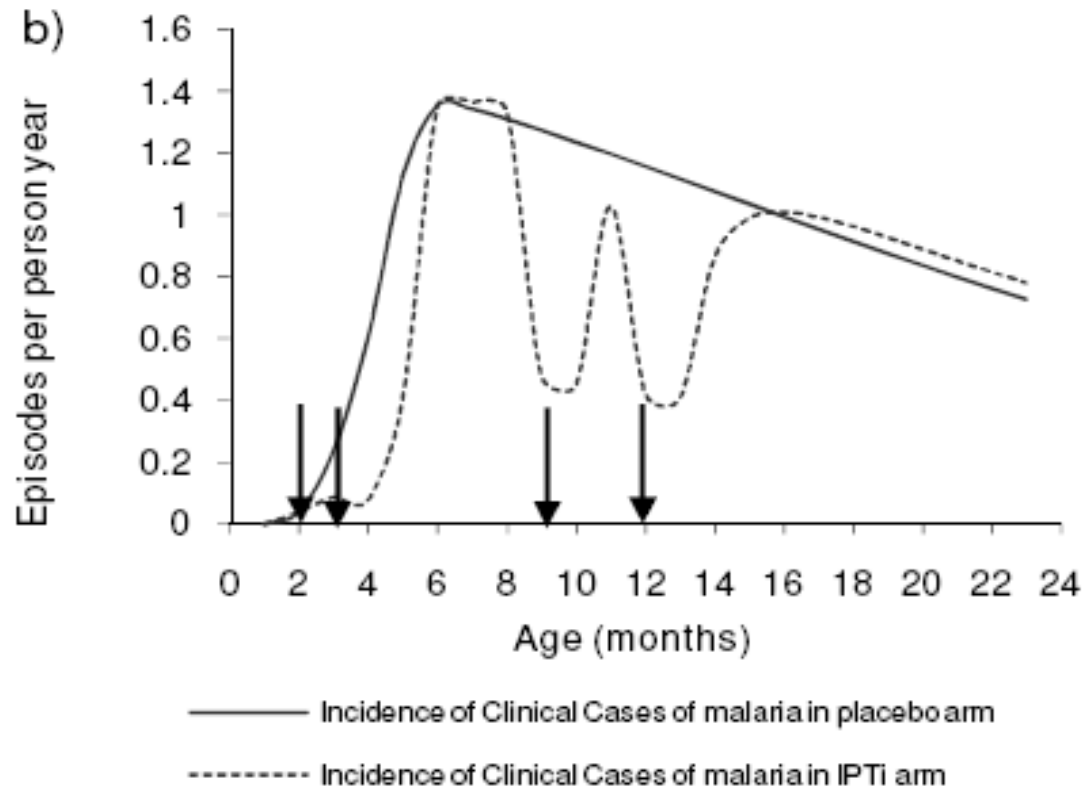
Tanzania by altitude



Is this seen with interventions?

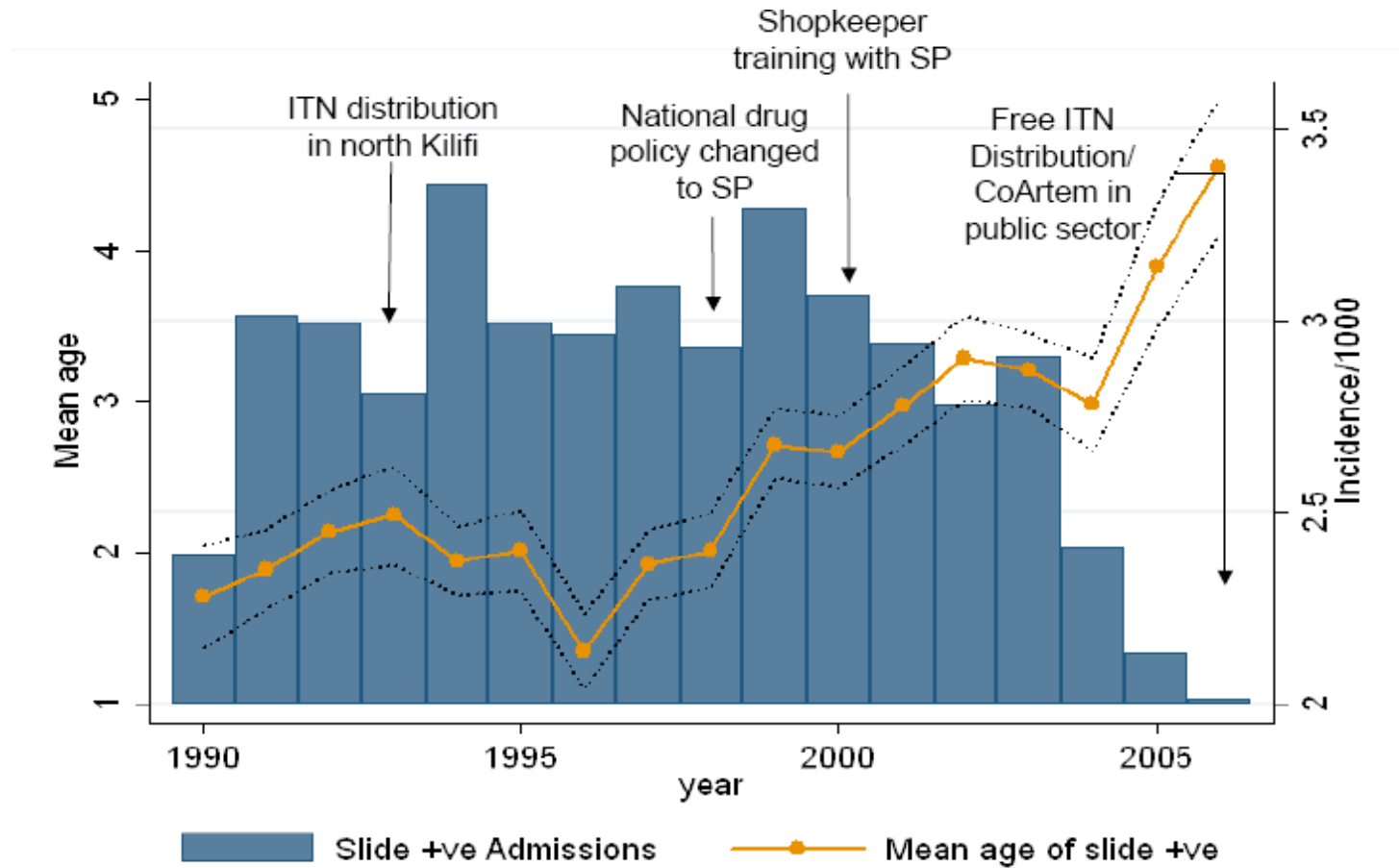
- Prophylaxis some show rebound
- IPTi No rebound
 Ifakara continued reduc.
- ITN No rebound

Why/why not?



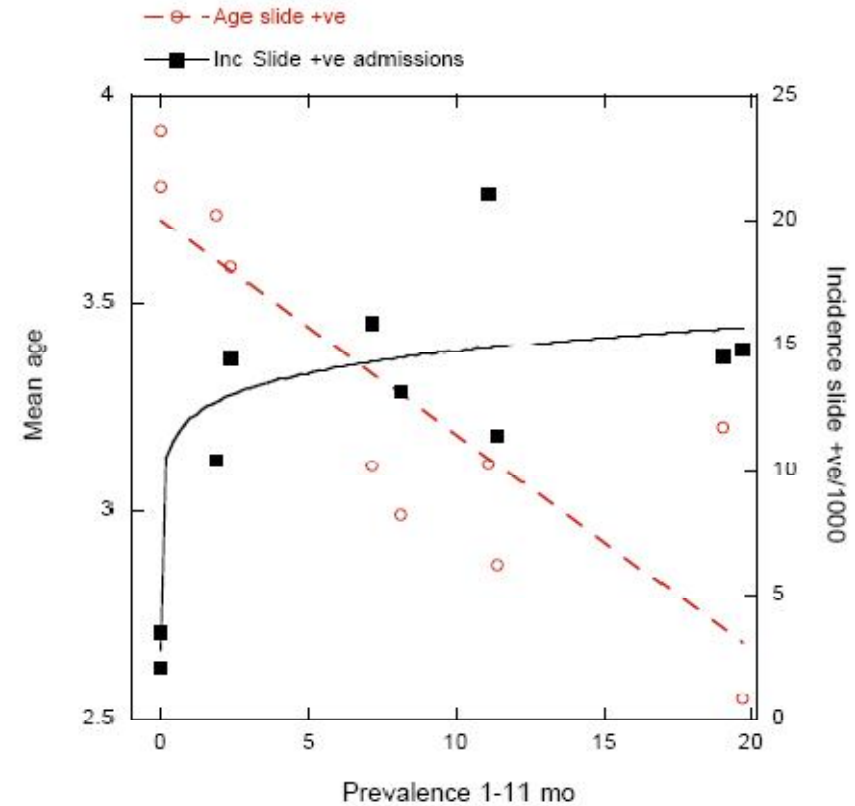
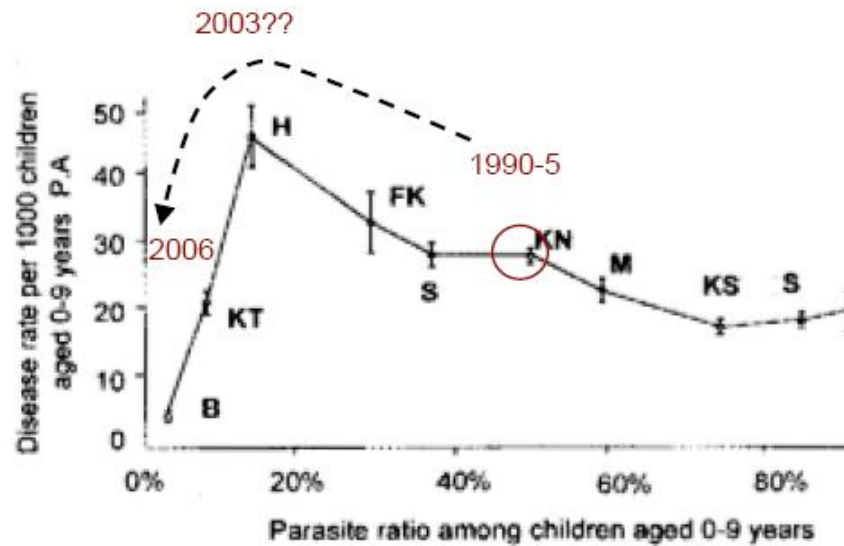
Gosling et al

Current trends



O'meara et al

Current trend of geographical variation



Marsh & Snow.
O'meara et al

Role for a vaccine in control?

- ITNs protect the community
- Effect on vector survival as well as infectivity
- Vaccine doesn't kill vector, may reduce gametocytes
- ITN/IPTi assessed in control programmes
- Trends and associations are not RCTs

Conclusion re changed epidemiology

- No current evidence intervention associated with delayed adverse consequences
- Current trend of malaria down
- Unclear why
- 1st two points may be connected
- Long term follow up essential.

Conclusions

- Generalizability of trials probably good
- Effects on epidemiology need monitoring
- Follow up needs to be long enough
- Control strategy of ITN/IPTi needs study, with or without vaccination.