



# Prophylaxis and Treatment of Malaria in HIV Infected Populations



*Moses R. Kamya, Jane Achan, Anne  
Gasasira*

**Affiliation:** Makerere University School of  
Medicine

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Surveillance Project



# Objectives



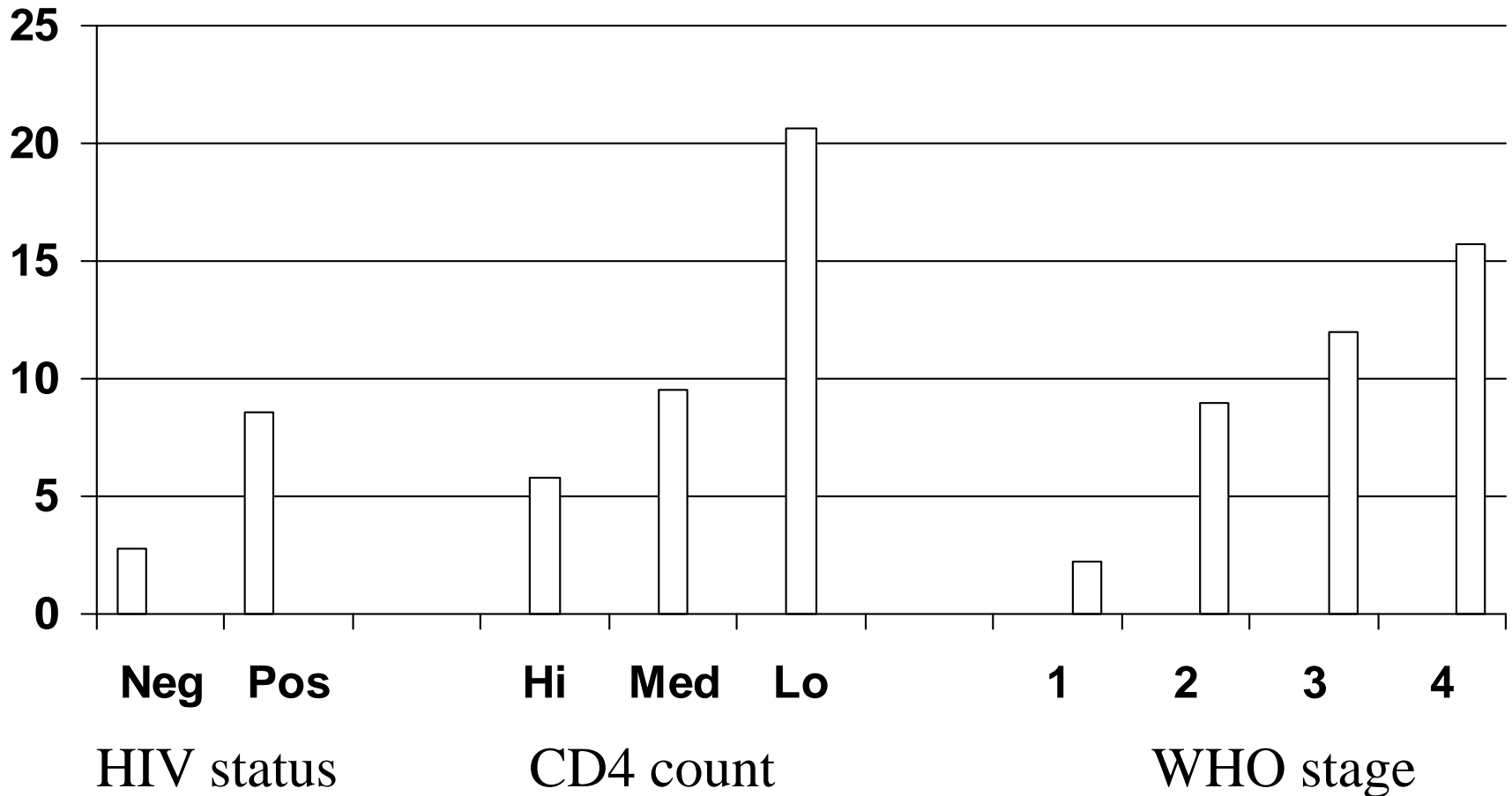
- HIV infection impairs the acquired immune response to malaria and increases incidence and severity of malaria and may reduce the efficacy of antimalarial treatment regimens.
- We present here findings from our studies (and a few by others) on prevention and treatment of malaria in HIV-infected populations



# Rates of clinical malaria by HIV status, CD4 count and WHO stage (Whitworth et al., Lancet 2000)



## Rates of clinical malaria per 100 person years





# Effect of CTX and ITN use on malaria incidence

(Kanya et al. AIDS 2007)



Exposure Group	IRR (95% CI)	P-value
No CTX, No ITN	Reference group	
CTX prophylaxis alone	0.65 (0.27-1.57)	0.34
ITN alone	0.56 (0.45-0.70)	<0.001
Both CTX and ITN	0.03 (0.01-0.11)	<0.001



# Protective efficacy of CTX in Kampala over time

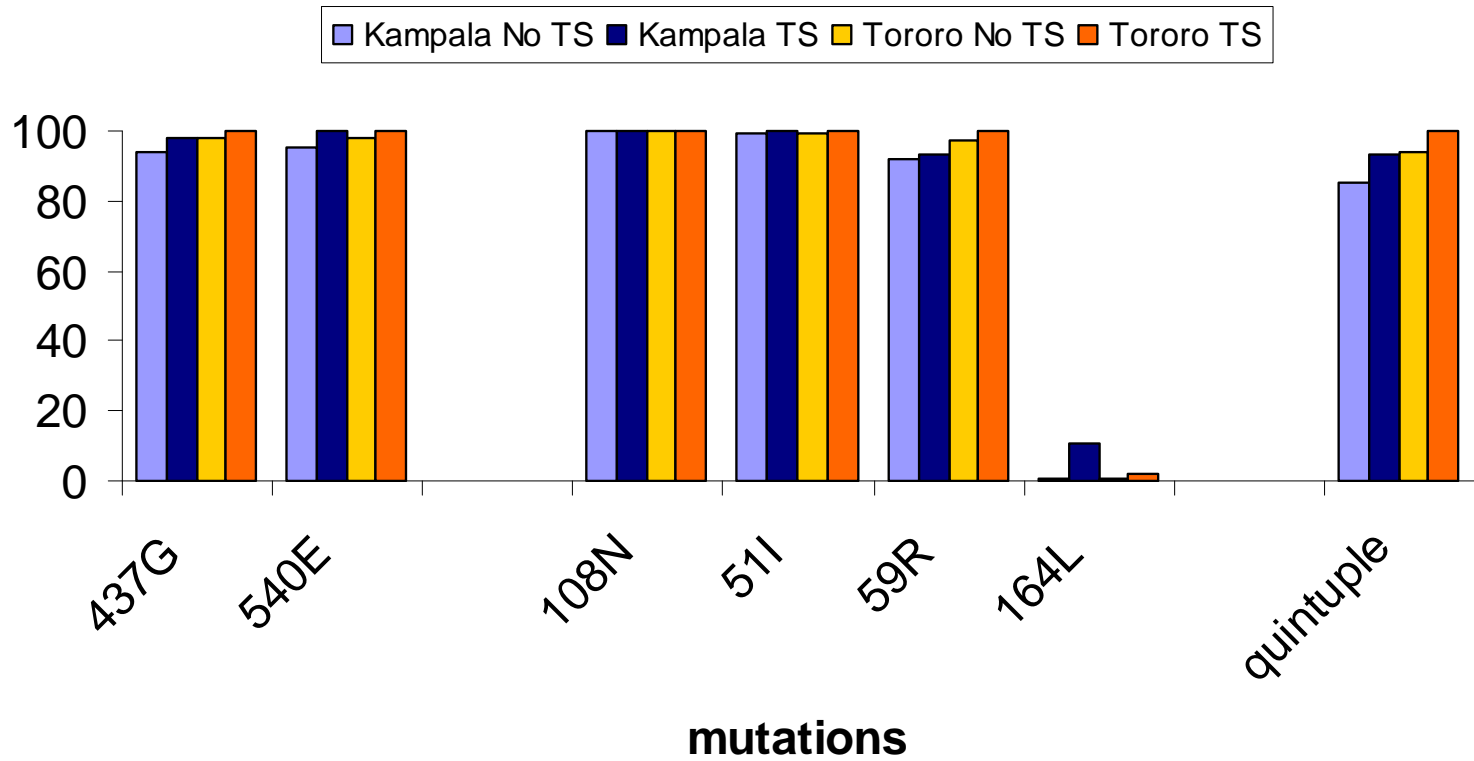


Time period	Malaria incidence (PPY)		Protective efficacy IRR (95% CI)*
	No TS	TS	
Aug 06-Jan 07	0.11	0.71	0.16 (0.09-0.27)
Feb 07-Jul 07	0.14	0.51	0.28 (0.16-0.46)
Aug 07 – Jan 08	0.09	0.38	0.24 (0.13-0.46)

\* Test for trend: p-value = 0.35



# Prevalence of *dhfr/dhps* mutations

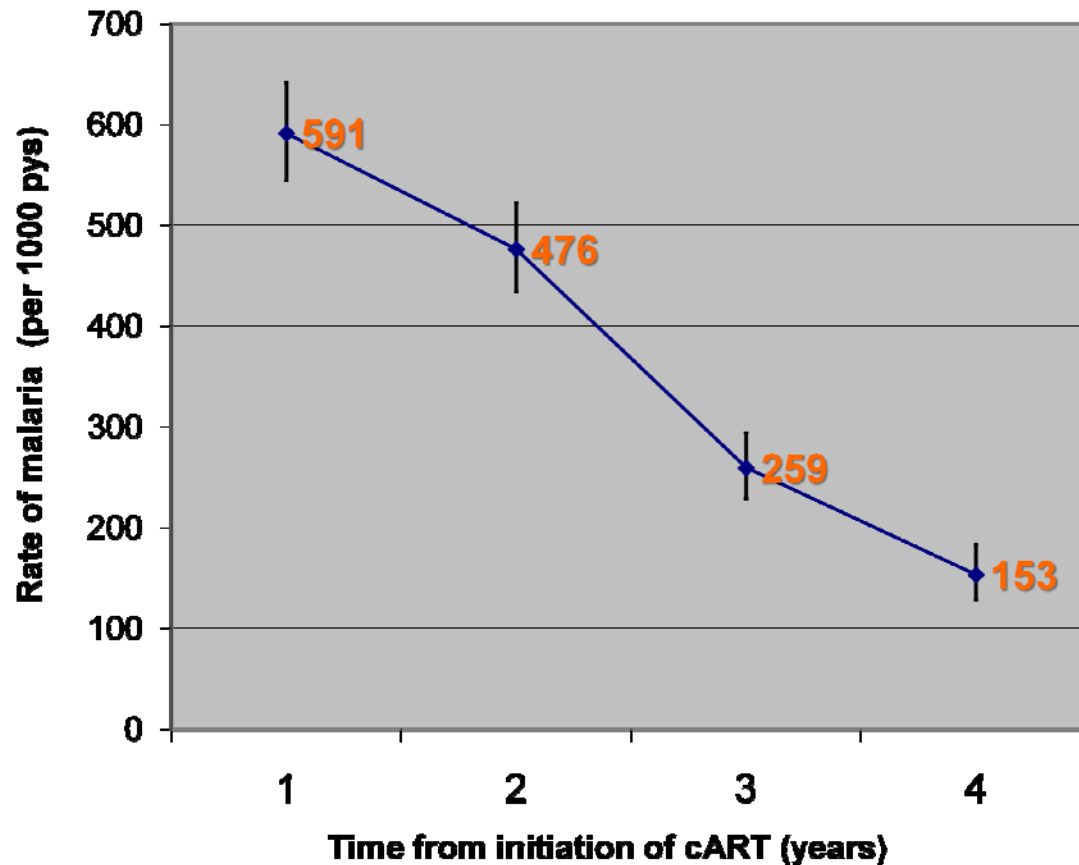




# Incidence of malaria over time on cART



**Incidence of malaria over time on cART**



R Kasirye, J Levin, P Munderi et al presented at IAS 2009 (TUPDB104)



# Associations between HIV and treatment failure following antimalarial therapy (Kamya et al. JID 2005)



## Age Group

< 18 years (n=1802)

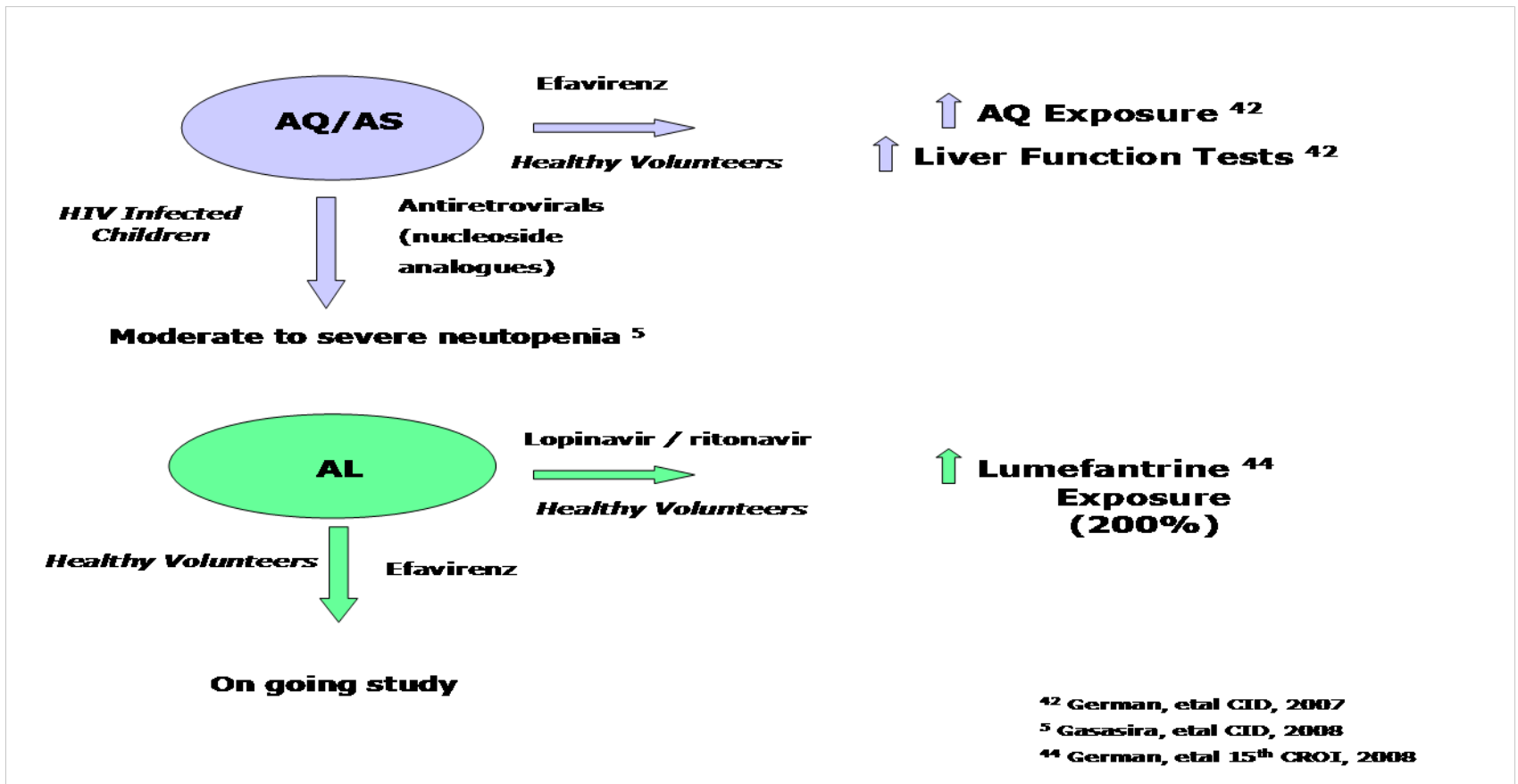
≥ 18 years  
(n=163)

	HR*	p-value	HR*	p-value
Any treatment failure	1.21	0.43	<b>3.28</b>	<b>0.02</b>
Recrudescence	1.67	0.13	1.51	0.64
New infection	0.94	0.88	<b>6.35</b>	<b>0.007</b>

\* Controlling for age and treatment group



# Safety of antimalarial regimens in patients receiving ART





# Discussion & Conclusions



- Use of TMP/SMX prophylaxis and ITNs substantially reduce the risk of malaria in HIV infected children and adults despite a high prevalence of molecular markers of antifolate resistance
- No evidence of declining efficacy over time in Kampala
- No evidence to support differential antimalarial treatment policies for HIV infected and uninfected patients with uncomplicated malaria
  - Effective regimens must be used
  - Severely immunosuppressed patients should be closely followed for Rx failure



# Future perspectives



- Need to monitor surveillance of higher level antifolate resistance-- may impact of the protective efficacy of TMP/SMX
- Do ARV drugs prevent malaria *in vivo*?
- Continued research is needed to establish the safety and efficacy of ACT regimens in patients receiving ART (PK studies, pharmacovigilance)
  - Need to study PK and safety of full dose AL with LPV/r