

# Distribution of *Plasmodium falciparum* drug-resistant *pfmdr1* 86Y allele in two different zones of Uganda

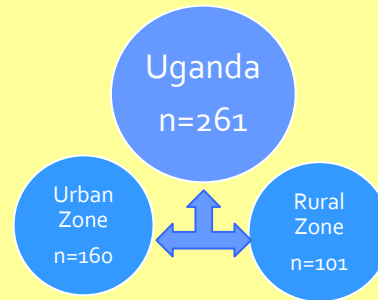
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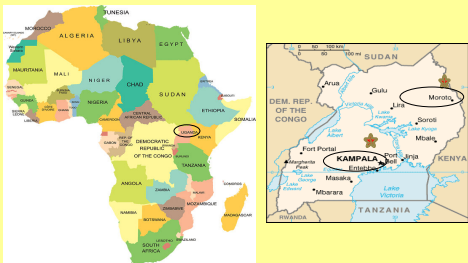
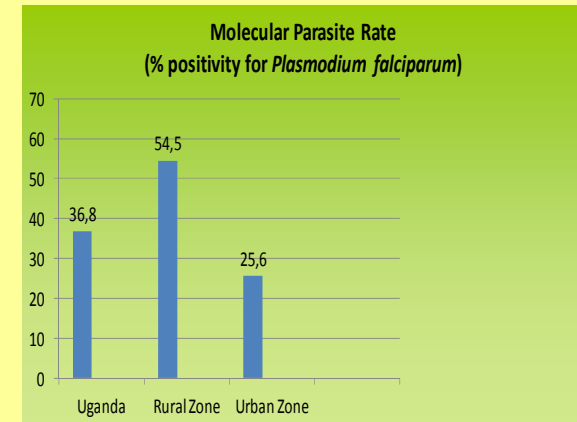
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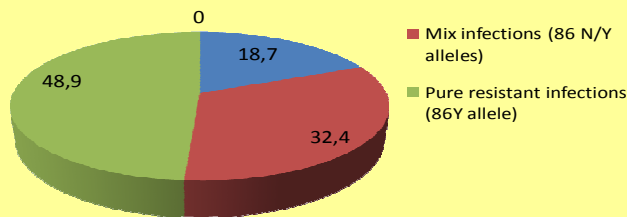
**Objectives.** In Uganda the antimalarial regimen is based on artemisin combination therapy (ACT): artemether and lumefantrine (AL) and, as an alternative, artesunate (AS) and amodiaquine (AQ). We test the spread of the *Plasmodium falciparum* drug resistant *pfmdr1* 86Y allele in urban zone of Kampala (Central-Southern Uganda) and in rural zone of Karamoja region (North-Eastern Uganda).



**Methods.** We analysed 261 samples from young asymptomatic subjects (mean age  $7.8 \pm 3.0$ ). To identify N86Y polymorphism in *pfmdr1* gene, *P. falciparum* DNA was amplified by nested PCR-RFLP.

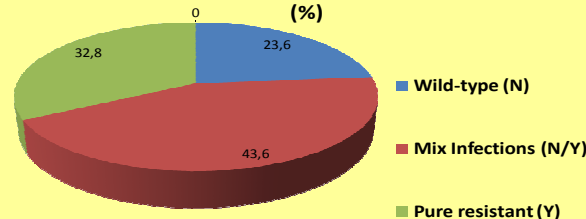


Parasite drug resistant genotypes in all malaria positive samples (%)

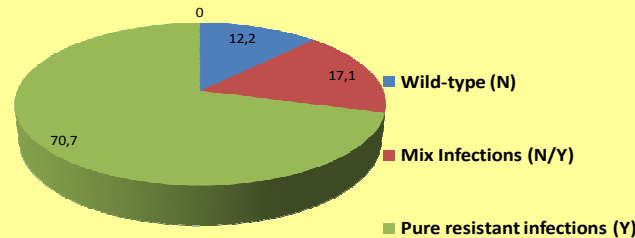


**Results.** The parasite rate in the two different areas was 25.6% in urban zone and 54.5% in rural zone, respectively ( $P \ll 0.001$ ). However, the rate of drug resistant genotypes was higher in the urban than in the rural zone, being 87.8% and 76.4%, respectively ( $P = 0.0002$ ).

Parasite drug resistant genotypes in rural zone (%)



Parasite drug resistant genotypes in urban zone (%)



**Conclusion.** The results show an inverse correlation between *P. falciparum* parasite rate and drug resistance spread in the two different zones, this being associated to two different transmission patterns and drug usage between rural and urban contexts.

	Rural Zone % (n/N)	Urban Zone % (n/N)	P
Parasite Rate % (n/N)	54.5 (55/101)	25.6 (41/160)	$\ll 0.001$
Drug Resistant Genotypes % (n/N) (mix + pure infection)	76.4 (42/55)	87.8 (36/160)	$= 0.0002$

References:

- 1) *Malaria Journal*. 2012. G.M. Paganotti, S.Gramolelli, F. Tabacchi, G. Russo, D. Modiano, M.Coluzzi, R.Romano
- 2) *Acta Trop*. 2005. J.A.Omumbo, C.A. Guerra, S.I.Hay,R.W.Snow

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