

Immunoepidemiology of *Wuchereria bancrofti* infection in two East African communities:

Simonsena, Paul E.; Meyrowitsch, Dan W.; Jaoko, Walter; Malecela, Mwele N; Michael, Edwin

Abstract:

The response pattern of specific antibodies to the microfilarial sheath (sheath-Ab) of the mosquito-borne filarial parasite *Wuchereria bancrofti* was investigated in individuals from two East African communities with different levels of endemicity. Individuals from both communities presented a strong inverse relationship between positivity for sheath-Ab and being positive for microfilariae (mf) and circulating filarial antigens (CFA). The prevalence of sheath-Ab positivity was highest in young individuals, but peaked at a younger age in the high (1–14 years) than the low (15–19 years) endemicity community. IgG1, IgG2, IgG3 and IgE intensities to a crude adult filarial worm antigen were higher, and IgG4 intensities were lower, in sheath-Ab positive than in sheath-Ab negative individuals, probably reflecting the infection status of individuals. From the study it appears that individuals become sheath-Ab positive before mf and/or CFA can be detected in the peripheral blood, and only after later disappearance of sheath-Ab from the circulation can CFA and mf be diagnosed. In light of the findings, possible roles of the distinct sheath-Ab in the host–parasite relationship are discussed, and a hypothesis is proposed which suggests that sheath-Ab play an important role in the regulation of host microfilaraemia