

O18.03

Fine resolution mapping of schistosomiasis mansoni incidence and associated risk factors.

Elias Nyandwi^{1,2}, Tom Antony Veldkamp¹, Sherif Amer¹, Corine Karema³, Irenée Umulisa³

¹University of Twente, Enschede, The Netherlands, ²University of Rwanda, Huye, Rwanda, ³Rwanda Biomedical Centre, Kigali, Rwanda

Schistosomiasis mansoni constitutes a significant public health problem in Rwanda. Prevalence per district, ranges from 0 to 69.5% among school children, as estimated by the first nationwide prevalence mapping completed in 2008. Subsequent, Mass Drug Administration focused on children in districts with a prevalence of at least 10%, in districts with a prevalence above 30% adults were also treated. Some recent studies confirm that the current low-resolution mapping approach is likely to omit or misclassify hotspots. This study aims to assess the capability of incidence cases recorded at health facility level for identifying schistosomiasis clusters at a much more detailed spatial scale than the current district level approach and to identify the associated risk factors. A GIS based spatial and statistical analysis was carried out, which shows that schistosomiasis distribution is highly localized with a significant spatial autocorrelation (Moran's $I > 0: 0, 05 - 0.20$ and $p \leq 0,05$). Thus, the service area covered by an individual health facility was the ideal scale to which a hotspot should be allocated. Furthermore, exploratory regression analysis identified a significant association between schistosomiasis incidences and valley/wetland zones with less sandy soil, warm and humid conditions and extent of (irrigated) rice cultivation. The detailed spatial variability of schistosomiasis and defined associated risk factors can contribute towards more effective, location specific disease and snail control interventions and monitoring.