

## **Population dynamics of adult *Schistosoma mansoni* worms before and after deworming treatment.**

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Schistosomiasis is a waterborne parasitic disease caused by infection with dioecious trematodes of the genus *Schistosoma* (family: Schistosomatidae). The worms form mating pairs and live in the venous system of their vertebrate host *in copula*, releasing eggs that are excreted in the urine or stool. Treatment with the anthelmintic praziquantel targets and kills adult worms. However, evidence<sup>3</sup> suggests that clearance of adult worms is not absolute, and any juvenile worms remain unaffected. It is not fully known how the adult worm population is affected by praziquantel and if eggs being excreted post-treatment are from worms surviving treatment, or from surviving juveniles or new infections that have now matured and started to produce eggs. Understanding these dynamics is particularly important in areas where transmission remains high despite multiple rounds of annual treatment (*i.e.*, persistent hotspots). It is impossible to differentiate between these two using standard diagnostics, as the worms are not directly accessible. However, larvae may be hatched from collected eggs and genotyped to infer parental lineages and to determine if the eggs are from new or surviving worms. *Schistosoma mansoni* is endemic across the lakeshore communities of Lake Victoria, Uganda, and causes intestinal schistosomiasis. Miracidia larvae of *S. mansoni* were collected from infected primary school-aged children in a persistent hotspot in Uganda pre-treatment and weekly post-treatment for up to six months. Up to 1000 miracidia were collected from 20 children pre-treatment and up to 300 a week from children post-treatment. Microsatellite data (a total of 17 loci), analysed using Geneious and Colony, are being used to genotype miracidia pre and post-treatment to i) identify all of the genotypes of adult worms in the effective breeding population prior to treatment, and ii) evaluate the changes in the composition of adult worm mating pairs and survival after treatment. Genotyping of pre-treatment larvae has begun for eight individuals (Early predicted number of worm pairs in individuals ranging from 28 to 65) and this preliminary data on aim 1 will be presented and discussed in the context of aim 2.