Schistosomiasis is a disease of poverty that leads to chronic ill-health. Infection is acquired when people come into contact with fresh water infested with the larval forms of parasitic worms, known as schistosomes. The adult worms live in the veins draining the urinary tract and intestines. Some of the eggs they lay are trapped in the tissues and it is the body’s immune reaction to them that can cause severe damage.

Urogenital schistosomiasis (also known as bilharzia) is caused by *Schistosoma haematobium* and affects more than 100 million people across Africa, including in Zimbabwe. After malaria, schistosomiasis is the second most important parasitic infection of public health concern in that region, with children being most at risk of infection and disease. In affected populations, children carry the heaviest burden of disease, often suffering from haematuria, anaemia, nutritional deficiencies, growth retardation and poor educational attainment.

Furthermore, untreated schistosome infections acquired in childhood can lead to kidney and bladder disease, bladder cancer, reduced fertility and susceptibility to HIV infection in adulthood.

Francisca Mutapi at the University of Edinburgh has studied the immunological consequences of urogenital schistosomiasis for several years. Her team has focused on determining the host and parasite factors that influence patterns of infection and disease in human populations.

In particular, her research has shown that the drug Praziquantel (PZQ) - the only control measure currently available - accelerates the development of acquired schistosome-specific immunity favouring responses associated with protection against re-infection with the parasites.

The data has been extensively used to inform vaccine development and optimization of drug intervention strategies in Africa, including mass drug administration (MDA) programmes in Zimbabwe.
Previous MDA programmes using Praziquantel (PZQ), the only control measure currently available, were restricted to school age children and adults. These programmes excluded under 5s partly because the efficacy of PZQ treatment in this age-group had not been evaluated, and also because it was thought that such young children carried a low worm burden. This potentially exposed several million very young children in Africa to infection with schistosomes and associated diseases.

However research from Francisca Mutapi and her team working with collaborators at the University of Zimbabwe, and others elsewhere in Mali and Sudan, demonstrated that schistosome infection rates in the under-5s are actually higher than in adults already enrolled in MDA programmes. Their data also showed that not only is PZQ safe for pre-school children, it is as effective at treating schistosome infection in this age-group as it is in older children.

The results obtained by Francisca’s team in Zimbabwe were presented alongside those from other regions of Africa at a workshop at the World Health Organisation in September 2010. In September 2012, a new MDA programme was begun in Zimbabwe, which has already treated almost 350,000 pre-school children for the first time. The University of Edinburgh is now leading a monitoring and evaluation survey that has shown that the new MDA programme has been extremely successful in reducing S. haematobium infection in pre-school children, and is significantly reducing the risk of long-term morbidity.

The Chair of the 2010 WHO workshop on Schistosomiasis said:
“This on-going programme and evaluation study in Zimbabwe will help many thousands of children in the short term and several million in the long term”