What's the point of point-of-care? Using haematological testing in the field to assess parasitic coinfections in children

The study of tropical parasites such as malaria and schistosomes, along with their associated diseases, frequently necessitates working in areas where these infections are endemic. This means that fieldwork takes place in rural settings with limited access to laboratory resources. In parasitic coinfection, one of the ways parasites interact is by their effects on the host immune system. Methods of quantifying immune cell parameters in the field may be useful in investigating coinfected populations. The effects of schistosome coinfection on malaria is unclear, with previous studies showing conflicting results. Greater understanding of the underlying immune processes in coinfection may assist in unpicking these seemingly contradictory results, and point-of-care testing offers an alternative to transport of samples for laboratory analysis. In this work we utilise haemoglobin and white cell counting in a rural field site in Malawi to assist in the assessment of children with malaria, schistosomes or coinfection. We found point-of-care assessment of these haematological parameters to be user-friendly and feasible for rapid screening of a study population. In this group with high prevalence of both malaria and schistosomes we found differences in blood parameters between singly and coinfected participants, as well as some individuals with markedly abnormal white cell counts requiring follow up from local clinicians. Point-of-care testing under field conditions is not without its challenges, but also carries opportunities for both research and clinical use.