

Increasing efficiencies from integrating control and elimination programmes for soil-transmitted helminths and schistosomiasis

David Rollinson^{a,b,*}, Girija Sankar^c, Mariana Stephens^c, Anouk Gouvras^a, Johannes Waltz^a, Louis Albert Tchuem Tchuenté^d and Rubina Imtiaz^c

^aGlobal Schistosomiasis Alliance, 22 Uxbridge Road, Ealing, London, W5 2RJ UK; ^bLife Science Department, Natural History Museum London, SW7 5BD, UK; ^cChildren Without Worms, Task Force for Global Health, 325 Swanton Way, Decatur, GA 30030, USA; ^dFaculty of Sciences, University of Yaounde I, Yaounde, Cameroon

*Corresponding author: Tel: 44(0)2079425181; E-mail: d.rollinson@nhm.ac.uk

Received 24 March 2021; revised 29 April 2021; editorial decision 29 April 2021; accepted 12 May 2021

Attention is now beginning to focus on implementation of the new WHO NTD Roadmap (2021–2030), which presents single disease alliances and coalitions with an opportunity to consider novel ways to integrate and adapt control and elimination programmes to meet the new goals. This discussion piece links the parasitic worm diseases, caused by soil-transmitted helminths and schistosomes, highlighting that neglected tropical disease-control programmes could potentially benefit from greater cohesion and innovation, especially when increasing efforts to achieve elimination goals.

Keywords: soil-transmitted helminths, schistosomiasis, control, elimination, NTD Roadmap.

The new WHO NTD Roadmap (2021–2030) draws attention to the enhanced efficiencies that arise from shared approaches for the control and elimination of co-endemic neglected tropical diseases (NTDs).¹ Hence, it is timely to consider what more can be done to maximise these efficiencies. This is especially relevant to the soil-transmitted helminths (STHs; *Ascaris lumbricoides*, *Trichuris trichiura* and the hookworms *Necator americanus* and *Ancylostoma duodenale*) and the schistosomes (SCHs; *Schistosoma mansoni*, *Schistosoma haematobium*, *Schistosoma guineensis*, *Schistosoma intercalatum*, *Schistosoma japonicum* and *Schistosoma mekongi*), which, together, represent some of the world's most prevalent NTDs. Their global distributions overlap in many countries, making them prime candidates for a shared approach, especially because the respective drugs used in their control can be administered together. Indeed, it is in these common geographical areas that renewed efforts should now be explored with some urgency to better integrate and adapt control programmes. The STH Coalition and the Global Schistosomiasis Alliance, stakeholder engagement platforms that were initially developed to focus on disease-specific issues, share similar goals and challenges in resource mobilisation and intervention scale-up. The new WHO NTD Roadmap provides a renewed opportunity and impetus to collaborate closely and promote cross-sectoral discussions to share and systematically advance the experiences from country programmes, many of which are already successfully integrating activities.

STHs are gut-living nematodes with direct life cycles, while SCHs are blood-living trematodes, which may cause either intestinal or urogenital schistosomiasis. Additionally, SCHs depend on various snail intermediate hosts and freshwater for transmission. The biological differences between parasites and ecological parameters clearly need to be factored into joint approaches as transmission dynamics and distribution patterns can be quite distinct. While the drugs used for preventive chemotherapy are different—albendazole/mebendazole for the STHs and praziquantel for SCHs—they are frequently administered together through the same platforms of mass drug administration. Many countries implement 'deworming' programmes in schools for both STHs and SCHs and, at the Ministry of Health level, management of STHs and SCHs in co-endemic countries is combined with a programme manager responsible for both diseases. What is now needed to achieve cross-disease efficiencies is a more defined framework for integration and a combined push towards greater involvement of health systems, especially for efficient resource mobilisation. Opportunities for greater coordination exist in areas such as individual diagnosis, high resolution mapping, implementation of preventive chemotherapy, monitoring and surveillance strategies, behavioural change, educational activities and water sanitation and hygiene (WASH) interventions.²

A report by the Economist Intelligence Unit, commissioned by The END Fund, estimated productivity gains of US\$5.1

billion at purchasing power parity could be made when achieving the WHO 2030 goals for schistosomiasis and STH elimination in four countries (Ethiopia, Kenya, Rwanda and Zimbabwe).³ This analysis included the increase of future productivity of adults due to reduced morbidity and mortality, the increased earning potential of children entering the workforce after achieving higher educational attainment through the avoidance of morbidity during school-aged years and the prevention of irreversible morbidity when entering the workforce. Although the report suggests cost-saving benefits of an integrated approach for treatment delivery, further research is needed to understand the cost of implementing integrated NTD-control strategies and how this may influence cost-effectiveness.⁴ Measuring the economic impact, cost and cost-effectiveness of integrated NTD programmes will inform decision-making in countries moving to strengthen domestic financing for sustainable NTD control and elimination, as outlined by Huang et al. on resource-tracking for NTDs.⁴

The advent of the COVID-19 pandemic further underscores the need for resource efficiency to reach the same target populations for multiple diseases. NTDs are diseases of the most marginalised populations, with STHs and SCHs also representing those with the poorest access to basic WASH and health facilities. The pandemic has highlighted the inequitable reach of global health systems. NTDs in general, and STHs and SCHs in particular, have established health services and related networks of trained health workers and platforms to access these same populations that are at the highest risk of severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) infections. As resources and plans are rapidly mobilised to restructure health systems to address SARS-CoV-2, and in support of universal health coverage, STHs and SCHs can become the indicator diseases for the equity of health systems.⁵

Now is the time to merge our efforts and resources thoughtfully, guided by quality data and using the experience and reach of STH and SCH networks to accelerate progress towards the control/elimination of STHs and SCHs and achieve the WHO NTD

Roadmap targets. Enhancing this collaborative implementation model for STHs and SCHs could help guide similar efficiencies across additional NTDs.

Authors' contributions: All authors contributed to writing this commentary.

Funding: None.

Competing interests: None declared.

Ethical approval: Not required.

Data availability: None.

References

- 1 WHO. Ending the neglect to attain the Sustainable Development Goals: a road map for neglected tropical diseases 2021–2030. Geneva, Switzerland: World Health Organization; 2020.
- 2 Harding-Esch EM, Brady MA, Angeles CAC, et al. Integrated survey methodologies for neglected tropical diseases. *Trans Royal Soc Trop Med Hyg.* 2021;115(2):124–6.
- 3 The Economist Intelligence Unit Breaking the cycle of neglect: Reducing the economic and societal burden of parasitic worms in sub-Saharan Africa. <https://wormfreeworld.eiu.com/>.
- 4 Huang XX, Toure H, Biswas G. Resource tracking for neglected tropical disease programmes: the first step for developing a sustainable financing strategy. *Trans Royal Soc Trop Med Hyg.* 2021;115(2): 179–81.
- 5 Fitzpatrick C, Bangert M, Mbabazi PS, et al. Monitoring equity in universal health coverage with essential services for neglected tropical diseases: an analysis of data reported for five diseases in 123 countries over 9 years. *Lancet Glob Health.* 2018;6: E980–8.