



## EDITORIAL

## Neglected tropical diseases: operational research for elimination and control

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<http://dx.doi.org/10.5588/pha.12.0054>

**N**eglected tropical diseases (NTDs) are the common denominator for infectious diseases that occur almost exclusively in poor populations in developing countries. The main NTDs include schistosomiasis, filariasis, intestinal helminth infections, leprosy, Buruli ulcer and protozoan infections such as trypanosomiasis (causing sleeping sickness in Africa or Chagas disease in South America) and leishmaniasis.<sup>1</sup> While biologically diverse, they share a number of characteristics: all are strongly associated with poverty and flourish best in tropical areas, where they often coexist. Taken together, they are a leading cause of disability, comparable to tuberculosis and malaria, with over a billion people affected.<sup>1</sup> Many predominantly target children, compromising physical growth and cognitive development. These ancient 'companions of poverty' undermine the wellbeing and productivity of already destitute populations, and severely impede meeting the United Nations 2015 Millennium Development Goals.

By definition, NTDs have not ranked high on the national and international political agendas. For most, there are no or few adequate diagnostics, tools or vaccines, the local health systems are deficient and overburdened and financial resources scarce. In terms of research and development, these diseases are also truly neglected; less than 1% of new therapeutic developments over the past decades have concerned tropical diseases.<sup>2</sup> The treatment of Chagas disease and African trypanosomiasis still relies on drugs that were developed more than 40–60 years ago.

NTDs have fortunately received increased attention more recently from funders, global philanthropists, policy makers and researchers. A number of new global international networks have been established, and several ambitious initiatives have been launched, including some directed at the elimination of a range of NTDs.<sup>3</sup> A major new initiative aims for the integrated control and elimination of lymphatic filariasis, onchocerciasis, schistosomiasis, intestinal helminthiasis and trachoma through the use of mass drug treatment (preventive chemotherapy) with a combination of drugs.<sup>4</sup> However, huge knowledge gaps currently exist on how to widely implement this strategy in the most acceptable, (cost-) effective and sustainable way. Its global health impact and its interaction with and effect on already overburdened health systems remain to be better defined.<sup>5</sup> Issues such as safety and the emergence of drug resistance also need to be carefully assessed.

For other diseases, early diagnosis and treatment constitute key control measures. Although improved diagnostic tools and drugs have been developed, for example for visceral leishmaniasis, their large-scale implementation has proved challenging. While India, Nepal and Bangladesh have committed to eliminating visceral leishmaniasis by 2015, they struggle to make timely diagnosis and treatment widely accessible.<sup>6</sup> Monitoring and surveillance systems are suboptimal. Additional operational research will need to be conducted to enhance the effectiveness of current strategies and to evaluate novel approaches. The same applies to East Africa, where treatment for visceral leishmaniasis is still predominantly provided by non-governmental organisations.<sup>6</sup>

For diseases such as African trypanosomiasis and Chagas disease, there are no easy to use, reliable tests for diagnosis and/or test of cure. Therapy is lengthy, complicated and/or often poorly tolerated. Efforts of not-for-profit research and development organisations such as the Drugs for Neglected Diseases initiative (DNDi) and the Foundation for Innovative New Diagnostics (FINN) will hopefully help fill this gap.

As most NTDs are vector-borne or zoonotic in nature, efforts directed towards the control of the vector, intermediate host or animal reservoir will also be key.<sup>1</sup> Successful control of NTDs will ultimately hinge on the concerted efforts of all stakeholders, within a multi-disciplinary approach. How to maximise the impact of these efforts will have to be carefully assessed, and innovative strategies will have to be explored. Operational research will have its role to play.<sup>7</sup> Research findings will need to be easily accessible, widely disseminated and able to reach decision makers and programme managers.

*Public Health Action* is a new, open-access journal 'disseminating new knowledge on health systems and health services for vulnerable groups', and aiming to provide a 'voice for operational research'. Hopefully, we can expect many operational research studies on NTDs from the field in the years to come, including in this journal.

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## ACKNOWLEDGEMENTS

JvG is supported by the  
Inbev-Baillet Latour Fund.

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