Cost-effectiveness of community-wide treatment for helminthiasis

Nathan C Lo and colleagues (October, 2015)⁵ conclude that community-wide treatment programmes can be a highly cost-effective way to control morbidity of schistosomiasis and soil-transmitted helminthiasis, even in communities with low disease burden. This work is a timely contribution to an important issue; however, methodological shortcomings affect the conclusions.

Within the model, the health burden of schistosomiasis over time was estimated by simply assigning a disability-adjusted life-year (DALY) weight to the prevalence of infection, as in a cross-sectional Global Burden of Disease study. This estimation corresponded to more than 92% of the projected disease burden averted within the study (measured in DALY).

However, this approach will probably significantly overestimate the effect and hence the cost-effectiveness of community-wide treatment because it does not differentiate between prevention of heavy and light infections (the former being associated with morbidity)—this could be avoided by estimating burden on the basis of intensity of infection.¹

The effect of mass drug administration on transmission also depends on the relation between worm burden and egg production (which declines as burden increases). This relation has been shown to vary between species¹ and affects assumptions with respect to the underlying burden and the effectiveness of control. By assuming that the relation is the same across species, Lo and colleagues run the risk of overestimating the effect of community-wide treatment for some species.

Community-wide treatment can be a powerful intervention against soil-transmitted helminthiasis and schistosomiasis, but the effect is highly dependent on the epidemiological setting.⁴,⁵ For example, although community-wide treatment is probably essential to fully control hookworm’s morbidity, it might not be needed in regions that are dominated by Ascaris lumbricoides or Trichuris trichiura.⁴,⁵ Community-wide treatment to control morbidity could cost-effective in some settings, but the investigators might have overestimated its cost-effectiveness, particularly in areas with a low disease burden.

Because of obvious programmatic and financial constraints, the implementation of community-wide treatment will not be possible in every location in which these diseases are endemic. A large change in policy will necessitate analysis of a range of approaches and epidemiological settings. The benefit in many areas will not lie in morbidity control but in the capacity to accelerate progress to elimination, thereby reducing the programme’s duration (which is potentially cost saving).⁶-⁷ Ultimately, whether community-wide treatment is appropriate or not will depend on the epidemiological setting and whether the goal is to control morbidity or break transmission.

We declare no competing interests. RMA is a Non-Executive Director of GlaxoSmithKline.

Copyright © Turner et al. Open Access article distributed under the terms of CC BY.

*Hugo C Turner, James E Truscott, Roy M Anderson

hugo.turner06@imperial.ac.uk

London Centre for Neglected Tropical Disease Research, London, UK, and Department of Infectious Disease Epidemiology, School of Public Health, Faculty of Medicine, St Marys Campus, Imperial College London, London, W2 1PG, UK


