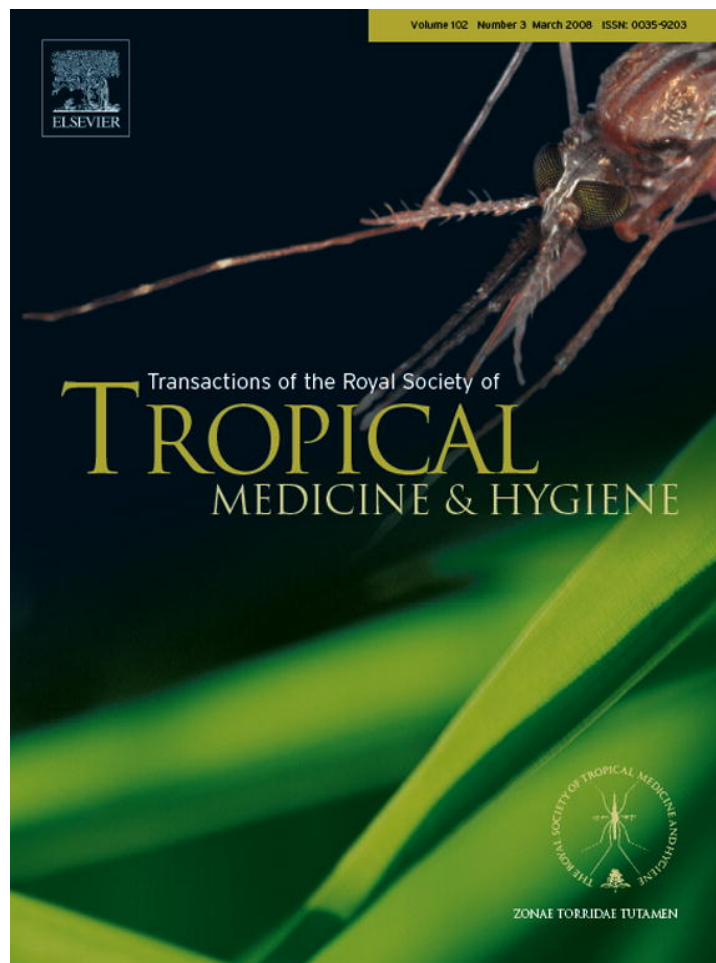


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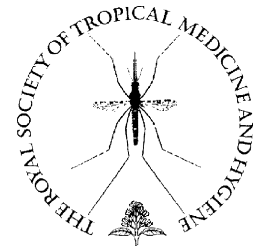


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## MINI-REVIEW

# Potential for integrated control of neglected tropical diseases in Ethiopia

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**Summary** Ethiopia is one of the poorest and least developed countries in the world, endemic for many neglected tropical diseases (NTDs). The Ministry of Health is successfully controlling onchocerciasis through community-directed treatment with ivermectin and has implemented health system changes that would allow extension of integrated NTD control to schistosomiasis, lymphatic filariasis, soil-transmitted helminthiasis and trachoma. Funds are now needed to gain a better understanding of the endemicity and co-endemicity of these diseases and to formulate and pilot integrated packages for mass drug administration (MDA). Based on the experience gained, MDA may then be scaled-up to all NTD-endemic areas.

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Integration of mass drug administration (MDA) has the potential to control seven diseases – onchocerciasis, lymphatic filariasis (LF), schistosomiasis, trachoma, ascariasis, trichuriasis and hookworm disease (Molyneux et al., 2005) – and to reduce costs by 26–47% compared to vertical programmes (Brady et al., 2006). To support integrated MDA, WHO has published guidelines on coordinated use of the necessary drugs (WHO, 2006) and the US Agency for International Development has allocated some funding. This will provide several countries with financial and technical support to expand the evidence base for integrated MDA and to share their experiences. Ethiopia is a country with a high neglected tropical

disease (NTD) burden that is ready and suitable for this.

Rapid epidemiological mapping has shown that onchocerciasis extends from the northwest to the southwest (Berhane et al., 2006). The main symptoms are dermal manifestations. An estimated 5 million people are infected and 12 million are at risk. All hyperendemic areas are covered by community directed treatment with ivermectin (CDTI). By 2006, over 3.5 million individuals (60% of the target population) received treatment. Implementation is integrated into routine Ministry of Health (MoH) activities and receives some support from the Carter Centre and Light for the World.

Both *Schistosoma mansoni* and *S. haematobium* are endemic, but detailed surveys to estimate the schistosomiasis burden have not been conducted. *Schistosoma mansoni* is widespread, occurring mostly in agricultural communities at 1300–2000 m. *Schistosoma haematobium* appears to be confined to lowlands below 800 m. Recent developments in commercial irrigation and hydroelectric schemes

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have resulted in the spread of schistosomiasis (Berhane et al., 2006), and migration of infected people into cities is expected to further increase the size of the area at risk. Some control has been implemented in the past using MDA and annual molluscicidal activity. Current control is limited to treatment of symptomatic disease at some health facilities.

National prevalence of hookworm is 16%, decreasing with altitude. Hookworm disease is practically absent in areas above 1000 m. National prevalence rates of *Ascaris lumbricoides* and *Trichuris trichiura* are 37 and 30%, respectively. No estimates of the national burden are available and, until recently, soil-transmitted helminths (STHs) were not specifically targeted for control. However, from 2004 albendazole treatment was included as a component of the Enhanced Outreach Services (EOS), a campaign intervention similar to Child Health Days in other countries, which was initiated by the MoH and UNICEF to tackle malnutrition in drought-prone districts.

Data from small prevalence surveys indicate that LF is restricted to the western and southwestern lowlands (Berhane et al., 2006). However, Ethiopia's climate and environment would allow transmission over a larger area, which needs to be delineated through surveys. A rough calculation, using climate data and extrapolated population figures, estimated that almost 3 million people were at risk in 2000. To date, no LF control has been undertaken, but the MoH and partners are conducting a prevalence survey in late 2007.

Ethiopia has the highest rate of blindness in the world, with a national prevalence of 1.6% (FMoH, 2006). Two major causes are cataract (40%) and trachoma (30%). Approximately 1.2 million people are blind, 9 million children aged 1–9 years have active trachoma and 1.3 million adults have trachomatous trichiasis. A control programme supported by the Carter Centre is currently being implemented in 19 districts in the northwestern region of Amhara, targeting about 4 million people.

Since the 1990s, the Ethiopian government has decentralized health sector responsibilities, which has led to human resource shortages and high staff turnover. In response, the MoH started to train female high school graduates, selected by their communities, as Health Service Extension Workers (HSEWs) and to increase the number of community health workers. This so called 'Health Service Extension Programme' (HSEP) focuses on strengthening health promotion and expanding health care delivery at the periphery.

While the HSEP is being rolled out, the MoH implements EOS campaigns, including albendazole distribution for STH control. MDA for other NTDs could be delivered

through these campaigns and then be integrated into the role of HSEWs, once sufficient numbers have been trained and deployed. These large-scale campaigns and plans for their gradual integration present a great opportunity for integrated and sustainable NTD control, as does the existing CDTI structure and the trachoma control programme. Piloting MDA through a combination of the above could generate important data on cost and effectiveness that would also be relevant to other countries with existing onchocerciasis control programmes and/or implementing campaigns, wanting to scale-up NTD control.

Ethiopia now needs financial support to complete disease mapping and to formulate and pilot integrated MDA packages in areas of co-endemicity. The fact that delivery structures are in place, the government is committed and all NTDs are already integrated under the MoH's Disease Prevention and Control Department, promises high returns on a moderate investment.

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