

IS-3 Evaluation of Age- and Risk-Based Mass Drug Administration Policies to Control Soil-transmitted Helminths: A Mathematical Modeling Study of Ghana

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Even after 18 years of mass drug administration (MDA) interventions, soil-transmitted helminthiasis (STH), a neglected tropical disease remains a major health problem all over the world particularly in Ghana, which has 14.5% prevalence. The resource-limited government of Ghana currently concentrates on implementing MDA efforts directed at school-aged children in their fight to limit STH. Studies have shown that focusing MDA in a specific age group for controlling the disease may not be a cost-effective policy; and prevalence of hookworm infection (*Ancylostoma duodenale* and *Necator americanus* species of helminths) is highest in the adult age group in Ghana. Moreover, adults particularly teachers and school-workers spend a large fraction of their time with children, a high-risk population due to unhygienic behavior; and thus, some adults may have a higher risk of infection than others. In this study we use a mathematical model to evaluate a novel set of age- and risk-based cost-explicit policies for implementing MDA and compared them with the policy focusing on school age children. Our results suggest that it is more cost-effective to allocate treatment through MDA efforts directed to at some proportion of adults along with children to achieve the goal of reducing prevalence below 1% set by the World Health Organization. In the presence of the budget constraints, including high-risk adults in school-based MDA efforts is, not surprisingly, more cost-effective than the current policy. In conclusion, the implementation of a hybrid MDA policy based on age and risk of the population is crucial to reducing STH load in developing countries and it is cost-effective.

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