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Cost-analysis and evaluation of implementation of age and risk based mass drug administration against Soil-Transmitted Helminthiasis in Ghana

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Soil-transmitted helminthiasis (STH), a neglected tropical disease (NTD) remains a major health problem all over the world including Ghana, one of the high STH prevalent countries (25.4%). To control the disease, the resource-limited government of Ghana currently concentrates on implementing mass drug administration (MDA) efforts only among school-aged children. However, various studies have identified that focusing on only a specific group for MDA for controlling the disease may not be a cost-effective policy. Moreover, some adults such as teachers and school-workers spend large fraction of their time with children, who are known high-risk population due to unhygienic behavior, and thus such adults have a higher risk to receiving infection. In this study we use a mathematical model to evaluate a novel set of age and risk based policies for implementing MDA based on their costs and compared it with the current policy (focusing on school age children). Our results suggest that it is more cost-effective to allocate treatment through MDA to at least some proportion of adults along with children as expected and shown in previous studies. However when high-risk adults and children are selectively provided MDA, the reduction in prevalence of STH is slightly better than the reduction from the current policy but with significantly lower associated cost. In conclusion, implementation of a hybrid MDA policy based on age and risk of the population is crucial to reducing STH load in developing countries while being cost-effective.