Integrating malaria and schistosomiasis control programs? There's an app for that

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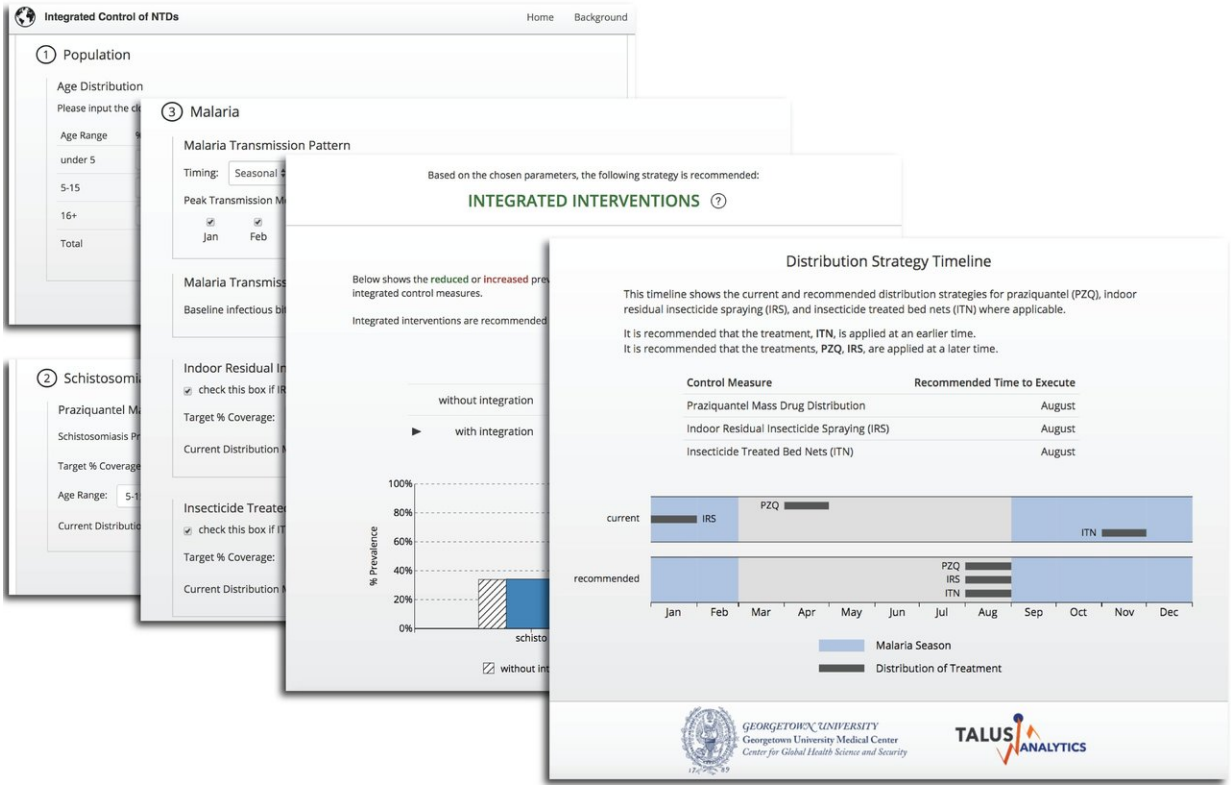

Collection of screen captured images from a decision support tool for use by public health practitioners to support evidence-based integration of disease control intended. Toward the foreground, decision-focused graphics include summary graph of results and a recommended timeline for distributing schistosomiasis and malaria control measures. Toward the background, examples of step-by-step user selections made to customize the analysis to reflect local demographics and disease transmission dynamics. Credit: Georgetown University Medical Center

Integrated disease control programs, which combine resources to fight multiple diseases at once, can be effective and lead to financial savings in developing countries. Now, researchers have designed a simple web-based application which allows on-the-ground decision making about the integration of malaria and schistosomiasis control programs. The application is described this week in *PLOS Neglected Tropical Diseases*.

Both schistosomiasis and malaria are endemic throughout much of sub-Saharan Africa, as well as certain regions of South America, the Middle East, and Southeast Asia. They also have a similar demographic impact, with children experiencing the highest rate of morbidity. At an individual level, there is a high rate of co-infection of the diseases. The effusiveness of combining control programs, however, is dependent on specific infection patterns and population structure in a local community.

Claire Standley and colleagues at Georgetown University designed an application—available on the internet, with future plans to develop access for mobile devises, which lets the user input information on a community's age distribution, malaria patterns, schistosomiasis prevalence, and interventions. Then, the app models the impact of running integrated treatment programs or non-integrated treatment plans on malaria and schistosomiasis. By default, the model uses a population size of 2,000 and a time span of 365 days for the programs.

To present a proof-of-principle of the application, the researchers applied data from countries across sub-Saharan Africa and the Middle East. They showed that the app can differentiate situations in which integration of control programs is most effective, and give information on how to best implement integration. In addition, feedback from on-the-ground users in Mali, Uganda, and Yemen was strongly positive.

"By summarizing complex disease model outputs as a straightforward

benefit comparison, in language and terminology familiar to disease control officers, our prototype tool provides the effective translation from academic research to support evidence-based decision making at national, regional, and local scales," the researchers say.

More information: Standley CJ, Graeden E, Kerr J, Sorrell EM, Katz R (2018) Decision support for evidence-based integration of disease control: A proof of concept for malaria and schistosomiasis. *PLoS Negl Trop Dis* 12(4): e0006328. doi.org/10.1371/journal.pntd.0006328

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