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Title: Modelling the mass treatment of a population infected with *Schistosoma mansoni*

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Abstract: Schistosomiasis is an important public health problem that affects especially human populations living in poor socioeconomic environments, without adequate sanitation and clean water.

We propose to work on the issue: does annual mass treatment with praziquantel lead to an important and long-lasting sustained reduction of *S. mansoni* reinfections, independent of other interventions such as snail control, better sanitation, and health education programs?

We have modelled the problem with a system of non-linear ordinary differential equations, describing the evolution of the infected and non infected populations. It has an unique global attractor and predicts that, although treatment reduces significantly the prevalence, the only way to extinguish the epidemic is to avoid (re)infection. In other words, our conclusion is that, in order to eliminate Schistosomiasis, public health policies aimed at both treatment and sanitation are mandatory.

We applied to our model parameters extracted from IBGE and a longitudinal study performed between 2001 and 2010 with the total population from the endemic area of Virgem das Graças, a rural community located in northern Minas Gerais State, Brazil, obtaining a limit prevalence of 5.3%, which agrees with values obtained by the Ministério da Saude.

We have also addressed the question of how often should a treatment be applied: annually, every six months, etc? We changed slightly our model and calculated the prevalences after four years of treatment, concluding that a six months treatment will give the same results as the more frequent ones.