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Force of infection and age-profiles of *Taenia solium* human taeniasis and cysticercosis: global trends and subnational analysis for Colombia

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The health and economic burden imposed by the zoonotic cestode, *Taenia solium*, is substantial, posing a major global health challenge across endemic countries. The World Health Organization (WHO) has proposed milestones in the 2021-2030 Neglected Tropical Disease (NTD) roadmap for countries to achieve intensified *Taenia solium* control in hyperendemic areas by 2030. Successful control and elimination strategies for *T. solium* will likely require tailored interventions based on local epidemiological and socio-economic conditions; therefore, understanding geographical variation in epidemiological patterns such as age-prevalence profiles and force-of-infection (FoI) estimates will be important to inform effective intervention design.

To estimate global FoI estimates for human taeniasis (HTT) and human cysticercosis (HCC), we collated age-(sero)prevalence data from 16 studies in Latin America, Africa and Asia, and fitted catalytic models, incorporating diagnostic performance uncertainty, using Bayesian methods, to estimate the rates of antibody seroconversion, infection acquisition and seroreversion/infection. In

addition, FoI estimates were estimated for 23 departments across Colombia (n=29,360 individuals), representing the first sub-national assessment of FoI estimates for *T. solium*.

Substantial variation in all-age seroprevalence was found across settings, with evidence for antibody seroreversion/ infection loss found in most settings for both HTT and HCC, including HCC seroreversion found across all departments in Colombia. Across epidemiological settings, the average duration until humans became seropositive or infected (reciprocal of the FoI) decreased as all-age (sero)prevalence increased. Marked geographical heterogeneity in human *T. solum* transmission rates demonstrate the requirement for setting-specific intervention strategies and parameterisation of transmission models, including at the sub-national level as identified for Colombia.