individual and household clustering of infection using longitudinal data, including two MDA rounds, to examine evidence of predisposition and household clustering of infection. For the different STH species, including the individual as a random effect accounted for 8.2-26.3% of the variation in prevalence whereas including household as a random effect accounted for 9.2-19.2% of the variation in prevalence. For any STH and *A. lumbricoides* the best fit models included both individual and household random effects whereas for *T. trichiura* and hookworm the best fit models included only the individual random effect. Factors that were protective for *A. lumbricoides* infection were high socioeconomic status (Adjusted Odds Ratio (AOR)=0.27, 95% Confidence Interval (CI) 0.11-0.69) and being in older age groups (25-39: AOR=0.1 95% CI 0.01-1.29. 40+: AOR=0.11, 95% CI 0.01-1.37). Being male was a risk factor for hookworm (AOR=3.60, 95% CI 1.26-10.28). When accounting for individual predisposition and household clustering, treating household drinking water through chemical and boiling methods was a risk factor for *A. lumbricoides* infection (AOR=2.11, 95% CI 0.91-4.61). This analysis indicates that there are varying patterns of clustering of infection for different STH species. Individual predisposition to infection is evident for all species, but variation in infection with *A. lumbricoides* and when consolidating all species (any STH) is also partially explained by household clustering. The results suggest that, to improve the impact of MDA and possibly achieve transmission interruption, focus needs to be on men and the poorest households in the endemic communities.

1999

EPIDEMIOLOGY OF SOIL-TRANSMITTED-HELMINTHIASIS FOLLOWING TWENTY-ONE ROUNDS OF MASS DRUG ADMINISTRATION IN SEVEN DISTRICTS, BANGLADESH

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Following WHO guidelines for STH morbidity elimination, Bangladesh conducted 21 rounds of mass drug administration (MDA) targeting school-age children. Children Without Worms (CWW) partnered with the Bangladesh national STH control program to measure the subsequent impact in 7-districts (almost 10% of national population) through surveys using previously described methodology. This paper shares the results of the 7-district concatenated data focusing on parasite- and age-specific prevalence, intensity of morbidity, and treatment history. Integrated Community-based Survey for Program Monitoring (ICSPM), primarily based on TAS-STH were conducted in 7-districts in 2017 - 2018. The surveys, conducted 5-months after the last, and one month prior to the next MDA, collected information at the household and individual levels. Kato-Katz method was used to examine the stool samples. The overall prevalence of any STH was 12.4% per laboratory examination of stool samples (n=7,597). Sunamganj (40.4%) and Sirajganj (26.9%) districts had the highest STH prevalence while Satkhira (2.0%) and Manikganj (3.1%) had the lowest. Moderate to high intensity (MHI) infection of STH was prevalent among 2.9% of overall respondents, while Sunamganj (10.4%) and Sirajganj (7.1%) had the highest prevalence of this surrogate measure for STH morbidity. The similarity in prevalence across all age groups in most districts was unexpected, especially the adults who were not treated through the MOH-conducted MDAs. Systematic intervention resulted in reduction of STH burden in the majority of surveyed districts. However, there were a few smaller areas of high, persistent infection highlighting the need for granular data in advanced programs. STH prevalence was comparable across age groups in spite of several rounds of MDA for SAC only and warrants further investigation. Impact surveys like the ICSPM and TAS-STH, are essential to guide programs that have achieved high, consistent treatment coverage. Additional tools and methods are needed to further map disease clusters in low transmission settings.

2000

FACTORS ASSOCIATED WITH SOIL-TRANSMITTED HELMINTHS (STH) PREVALENCE AND INTENSITY OF INFECTION IN COMÉ, BENIN, WEST AFRICA: FINDINGS FROM A BASELINE PREVALENCE SURVEY OF DEWORM3 STH-ELIMINATION TRIAL

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The DeWorm3 project aims to test the feasibility of interrupting the transmission of STH using a series of cluster-randomized trials in Benin, Malawi and India, using community-wide mass drug administration. From March to April 2018, a baseline STH (Hookworm, *Ascaris* and *Trichuris*) prevalence survey was conducted in Comé, Benin using the Kato-Katz technique. We report the parasitological results and factors associated with the presence and intensity of hookworm infection using mixed effects models. In total 6,139 stool samples were screened. Hookworm was the most prevalent (3.2% of samples), with a higher prevalence in adults than school aged (SAC) and pre-school aged childrend (PSAC) (4.4% vs 2% vs 1% ; p<0.001). In positive samples, we found a median of 4.5 eggs/slide (IQR: 2-13). Males were more infected (4% vs 2.6%; p=0.002) than females. Unadjusted risk factors for hookworm infection were being SAC (OR=2.4, 95%CI:1.03;5.4) or adult (OR=6.98, 95%CI:3.2;15.1), wearing shoes (OR=4.1, 95%CI:1.1;14.4), moisture/vegetation (OR=4.4, 95%CI:2.1;8.8), highest (3rd) tertile of sand fraction (OR=2.7, 95%CI:1.3;5.3) and peri-urban environment (OR:3.8, 95%CI:2.0;7.5). Protective factors were being female (OR=0.57, 95%CI 0.4;0.8), the highest (4th and 5th) quintiles of asset index (OR=0.2, 95%CI:0.1;0.4 and OR=0.2, 95%CI:0.1;0.3), no history of deworming in the past year (OR=0.2, 95%CI:0.1;0.4), improved water (OR:0.4, 95%CI:0.2;0.6), improved sanitation (OR=0.4, 95%CI:0.3;0.7). We found a positive association between the intensity of hookworm infection and being an adult (coeff=3.2, 95%CI:2.0; 4.4), wearing shoes (coeff=2.9, 95%CI:0.5; 5.3), moisture/vegetation (coeff=3.2, 95%CI:1.8; 4.5). A negative association was found with being a female (coeff=-1.2, 95%CI:-1.9; 0.6), no history of deworming in the past year (coeff=-2.87, 95%CI:-3.7;-2.0), improved water (coeff=-2.5, 95%CI:-3.4;-1.5), improved sanitation (coeff=-1.6, 95%CI:-2.5;-0.8). The prevalence of hookworm infection in Comé was generally low, but higher in adults. This could be explained by the national deworming program in Benin that targets only SAC.

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