1664. Maternal Hookworm Infection and Its Effect on Maternal/Child Health: A Systematic Review and Meta-Analysis
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Background. Hookworm is an intestinal parasite that infects 500 million people, with prevalence rates as high as 50% in rural Africa, especially in poverty-stricken, tropical and subtropical regions. In 2005, an estimated 6.9 million pregnant women living in Sub-Saharan Africa were infected with hookworm, despite efforts for mass drug administration (MDA) being recommended. This study aimed to investigate the health impact of hookworm infection in pregnant women in order to guide public health interventions.
Methods. A systematic review and meta-analysis were conducted using Medline OVID for the creation of MeSH terms, with subsequent translation to EMBASE and Cochrane Library. We performed a meta-analysis on the association between maternal hookworm and maternal anemia, as well as maternal hookworm co-infection with malaria. Other effects on maternal/child health were investigated and summarized without a meta-analysis due to the limited study numbers.
Results. Our search resulted in 471 studies for the meta-analysis, of which 23 met inclusion criteria. The prevalence of hookworm ranged from 1% to 67% in pregnant women, while malaria prevalence ranged from 11% to 81%. Pregnant women with anemia were more likely to have concurrent hookworm infection (combined odds ratio (OR) 2.21 [1.94, 2.51], P < 0.001). Additionally, pregnant woman with malaria were more likely to have hookworm infection (OR 1.71 [1.43, 2.03], P < 0.001). Our investigation also showed an interaction between maternal hookworm and infant birth weight (significant in three of four studies). Infant vaccine response did not show an association (four studies).
Conclusion. Hookworm infection in pregnant women is an important global health issue associated with significant maternal anemia and concurrent parasitic infections, such as malaria. Despite current MDA strategies in pregnant women, heavy hookworm burden, co-infection with malaria, and subsequent anemia persists. Further investigation on maternal-child outcomes of hookworm infection on maternal anemia, maternal malaria co-infection, and other areas, such as infant cognitive outcomes, will provide potential public health interventional targets to reduce morbidity.
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1665. The Cascade of Care for the Strong Hearts Chagas Disease Screening and Treatment Program in East Boston, Massachusetts
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Background. Over 300,000 people in the United States are infected with Trypanosoma cruzi, the parasite that causes Chagas disease. Less than 1% of these people have received antitrypanosomal therapy. We report findings from an ongoing project to identify infected Chagas disease patients in East Boston, including the epidemiology and cascade of care for this disease.
Methods. Providers at the East Boston Neighborhood Health Center were offered continuing medical education sessions on Chagas disease by the Strong Hearts project. One-time screening for Chagas disease is recommended for all patients <50 years old who had lived in Mexico, South or Central America for 26 months at the provider’s discretion. Screening is performed by a commercial laboratory using the Hemingen ELISA; confirmatory testing is performed at CDC. Patients with confirmed positive serology are referred to the Center for Infectious Diseases (ID) at Boston Medical Center for evaluation and treatment. We compared the prevalence of Chagas disease by age, sex and national origin. We then used a conditional numerator and fixed denominator to construct the cascade of care, with the stages defined as referred to ID care, evaluation in ID, initiation of treatment and completion of antitrypanosomal therapy. We used chi-squared tests to compare proportions.
Results. From March 21, 2017 to April 17, 2019, 5,125 patients were screened. 50 (0.97%) were confirmed to have T. cruzi infection, among them 3 pregnant women. There were no differences in the prevalence of T. cruzi infection by sex (M = 22/1870 [1.18%], F = 28/3305 [0.85%], P = 0.245) but prevalence increased from 0/190 (0%) in those <20 years old to 11/10083 (0.1%) in 40–49 year olds (P = 0.001). The 3 infected of mothers were screened. The cascade of care for Strong Hearts is displayed in Figure 1.
Conclusion. Chagas disease prevalence in at-risk communities in Boston is substantial. 1% of patients with T. cruzi infection identified in this program have completed treatment to date. Most infected patients were referred for evaluation, but substantial drop-off occurred at each of the next 3 steps of the cascade. Confronting barriers at each of these steps is a crucial component of efforts to address this neglected disease.
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1666. Community Beliefs about Ebola and Implications for Disease Control in Eastern Democratic Republic of the Congo
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Background. The current Ebola epidemic in Eastern Democratic Republic of the Congo (DRC) has surpassed 1,300 cases and 800 deaths. Social resistance is a major barrier to control efforts, and invites an exploration of community beliefs around Ebola and its origins.
Methods. Mixed-methods study, using focus group discussions (FGDs) with key community informants and a 19-item survey questionnaire broadly sampling the outbreak zone.
Results. Between 4 to 17 August, 2018, we conducted 4 FGDs (20 participants) and 151 community informant interviews across Eastern DRC. FGDs revealed a widespread rumor in Mangina early in the epidemic of two twin brothers bewitched by their aunt after eating her cat, who developed bleeding symptoms and triggered the epidemic. However, this myth appeared to dissipate as the epidemic progressed and biomedical transmission became generally accepted (measles/mumps). In our survey, 66% of respondents endorsed supernatural origins of Ebola. This subgroup did not differ from other respondents in terms of knowledge of biomedical modes of transmission or resistant attitudes toward infection control measures, but was more likely to believe that traditional healers could cure Ebola. Wild animals of the forest were recognized as sources of the Ebola virus by 53% of survey respondents. Our findings suggest that skepticism and/or denial of the biomedical discourse, coupled with mistrust and fear of ETUs may fuel "underground" transmission of Ebola outside western-style medical facilities, as patients seek care from traditional healers, who are ill-equipped to deal with a highly contagious biohazard.
Conclusion. A deeper understanding of beliefs around Ebola origins may illuminate strategies to engage communities in control efforts.
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1667. Influenza A and B Co-Circulation and Burden: A 2018-2019 Influenza Season Analysis Using the National Active Surveillance Database in Mexico
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Background. Seasonal influenza is a prevalent respiratory infection for children and adults in Mexico. Influenza A and B viruses co-circulate and there is a need to better understand local epidemiology to inform vaccination recommendations (trivalent/quadrivalent vaccines). We describe the 2018-2019 influenza season to estimate influenza burden, virus co-circulation and understand the vaccine match in Mexico.
Methods. We reviewed preliminary sentinel surveillance data for the influenza season (October 2018-May 2019) from the Mexican Health Secretariat and World Health Organization’s (WHO) FluNet databases. We performed a descriptive analysis of cases and deaths due to influenza-like illness (ILI), severe acute respiratory infections (SARI) and lab-confirmed influenza to estimate the prevalence of influenza A and B circulating strains, per state and age group, and determine B strain vaccine match.
Results. During the 2018-2019 season in Mexico, there were 52,525 reported cases of ILI/SARI with 6,997 lab-confirmed influenza cases (28% positivity rate among ILI/SARI) and 787 (11%) deaths (Figures 1 and 2). The states with 36% of cases were Mexico City, State of Mexico, Hidalgo, Tlaxcala, and Guanajuato. More than half of the Mexican states had a high (10-14.9%) to intense (21.5%) accumulated case positivity rate of confirmed influenza in relation to ILI/SARI cases (Figure 3). Most cases were reported among the 1-9 and > 60-year-old groups. 45% of deaths occurred in State of Mexico, Hidalgo, Mexico City, Puebla, and Guanajuato. The seasonal viral profile was dominated by A/H1N1 (68%), followed by B (16%) and A/H3N2 (12%), with 90%