

## The Prevalence of Soil Transmitted Helminths among Newly Arrived Expatriate Labors in Jeddah, Saudi Arabia

**Authors :** Mohammad Al-Refai, Majed Wakid

**Abstract :** Introduction: Soil-transmitted diseases (STD) are caused by intestinal worms that are transmitted via various routes into the human body resulting in various clinical manifestations. The intestinal worms causing these infections are known as soil transmitted helminths (STH), including Hook worms, *Ascaris lumbricoides* (*A. lumbricoides*), *Trichuris trichiura* (*T. trichiura*), and *Strongyloides stercoralis* (*S. stercoralis*). Objectives: The aim of this study was to investigate the prevalence of STH among newly arrived expatriate labors in Jeddah city, Saudi Arabia, using three different techniques (direct smears, sedimentation concentration, and real-time PCR). Methods: A total of 188 stool specimens were collected and investigated at the parasitology laboratory in the Special Infectious Agents Unit at King Fahd Medical Research Center, King Abdulaziz University in Jeddah, Saudi Arabia. Microscopic examination of wet mount preparations using normal saline and Lugol's Iodine was carried out, followed by the formal ether sedimentation method. In addition, real-time PCR was used as a molecular tool to detect several STH and hookworm speciation. Results: Out of 188 stool specimens analyzed, in addition to STH parasite, several other types were detected. 9 samples (4.79%) were positive for *Entamoeba coli*, 7 samples (3.72%) for *T. trichiura*, 6 samples (3.19%) for *Necator americanus*, 4 samples (2.13%) for *S. stercoralis*, 4 samples (2.13%) for *A. lumbricoides*, 4 samples (2.13%) for *E. histolytica*, 3 samples (1.60%) for *Blastocystis hominis*, 2 samples (1.06%) for *Ancylostoma duodenale*, 2 samples (1.06%) for *Giardia lamblia*, 1 sample (0.53%) for *Iodamoeba buetschlii*, 1 sample (0.53%) for *Hymenolepis nana*, 1 sample (0.53%) for *Endolimax nana*, and 1 sample (0.53%) for *Heterophyes heterophyes*. Out of the 35 infected cases, 26 revealed single infection, 8 with double infections, and only one triple infection of different STH species and other intestinal parasites. Higher rates of STH infections were detected among housemaids (11 cases) followed by drivers (7 cases) when compared to other occupations. According to educational level, illiterate participants represent the majority of infected workers (12 cases). The majority of workers' positive cases were from the Philippines. In comparison between laboratory techniques, out of the 188 samples screened for STH, real-time PCR was able to detect the DNA in (19/188) samples followed by Ritchie sedimentation technique (18/188), and direct wet smear (7/188). Conclusion: STH infections are a major public health issue to healthcare systems around the world. Communities must be educated on hygiene practices and the severity of such parasites to human health. As far as drivers and housemaids come to close contact with families, including children and elderly. This may put family members at risk of developing serious side effects related to STH, especially as the majority of workers were illiterate, lacking the basic hygiene knowledge and practices. We recommend the official authority in Jeddah and around the kingdom of Saudi Arabia to revise the standard screening tests for newly arrived workers and enforce regular follow-up inspections to minimize the chances of the spread of STH from expatriate workers to the public.

**Keywords :** expatriate labors, Jeddah, prevalence, soil transmitted helminths

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