

## **Leptospirosis: Environmental and occupational exposures in rural Sri Lanka**

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### **Abstract**

Human leptospirosis incidence in Sri Lanka is one of the highest of the world. Transmission of Leptospirosis requires an enabling environment such as, susceptible hosts, wet soils/water bodies and an animal reservoirs. A hospital based case control study was conducted to investigate risks associated with environmental, animal and occupational exposure of leptospirosis in Sri Lanka. All clinically suspected leptospirosis patients, who were admitted to medical wards of selected government hospitals in 2008, 2011, 2015 were pooled for the analysis. Exposure data was collected through a validated questionnaire using a pre-specified hierarchical model. MAT and PCR positive patients were defined as cases and those who were presented with similar symptoms but diagnosed to have other diseases were defined as controls. A total of 276 cases and 207 controls were included in this analysis. Risk exposures were studied for the entire population and for two stratified occupational groups, the non-paddy workers and the paddy workers. A higher odds ratio (OR) of leptospirosis transmission for paddy workers was observed compared to non-paddy workers (OR=1.905, 95% CI 1.274-2.856). Rat exposure was not associated with a significant higher risk for any of the groups. Instead, cattle and household animals seemed to be important for transmission of leptospirosis to humans, especially among non-paddy workers (OR=10.655, 95% CI 1.213-93.582). Leptospirosis in paddy workers was associated with environmental factors linked to contamination and wetness in paddy fields. Interestingly, abandoned paddy fields were found to have a protective effect against transmission to paddy workers (OR=0.421, 95% CI 0.237-0.748). Keeping animals on these dryer fields may act as a boundary for contamination of paddy fields with infectious animal urine. This finding could be considered in ecological interventions targeting leptospirosis among paddy workers.

**Keywords:** *Environment, Leptospirosis, Occupational exposure, Sri Lanka, Transmission*

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