

Identifying risk factors for leptospirosis infection in a Kenyan pastoral landscape

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Leptospirosis is a neglected but re-emerging zoonotic disease which has been identified as a disease of global public health importance due to the significant effect infection can have on human and animal morbidity and mortality¹. Leptospirosis is a water-borne bacteria that can cause febrile illness with a chance of serious complications. In recent decades, leptospirosis outbreaks have become more common, particularly in developing countries². While outbreaks are often reported in urban areas after flooding events, rural communities are highly vulnerable to leptospirosis outbreaks due to possible risk factors such as outdoor working, contact with animals, and poor sanitation. Various studies have documented a rise in incidence of this zoonotic infection due to various factors including climate change³, but less work has been done on identifying individuals at risk, especially in low-income rural areas in developing countries.

This project aims to identify individual risk factors associated with leptospirosis infection in a rural area of Kenya. This work could help inform health intervention programmes working to reduce leptospirosis infections in pastoral environments. Samples have been collected by the International Livestock Research Institute from members of households in villages in Tana River County, Kenya and were tested for leptospirosis using ELISA. Demographic data has also been collected from sampled individuals, as well as data on occupation, animal contact behaviour, and environmental data.

Students will carry out statistical analyses to examine the relationship between *Leptospira* seropositivity, which represents a prior leptospirosis infection, and demographic, behavioural, and environmental variables to identify risk factors for infection. Measures may be required to account for potential problems in the data such as pseudoreplication, spatial autocorrelation, and confounding. Students will receive a csv file containing data and a data description.

1. Goarant, C. (2016) Leptospirosis: risk factors and management challenges in developing countries. Research and Reports in Tropical Medicine 7: 49-62.
2. Soo et al. (2020) Leptospirosis: Increasing importance in developing countries. Acta Tropica 201: 105103.
3. Lau et al. (2010) Climate change, flooding, urbanisation and leptospirosis: fuelling the fire? Transactions of the Royal Society of Tropical Medicine and Hygiene 104: 631-638.