



Investigating Leptospirosis on Efate Island in 2023 through a One Health approach.

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Abstract text

Background: A surge in Leptospirosis cases occurred in Vanuatu after Tropical cyclones Judy and Kevin in March 2023, impacting people of all ages. Leptospirosis is caused by pathogenic *Leptospira* bacteria, transmitted through contact with water or soil contaminated by infected animal urine. Symptoms can range from fever and headache to organ failure if not treated. The increase in cases was due to heightened exposure to the bacteria in the environment, worsened by heavy rainfall. The investigation aimed to gather data and insights to understand the transmission of Leptospirosis and develop preventative measures to safeguard public health.

Methods: A multidisciplinary team, comprising various departments and organizations, conducted a field investigation to study the link between the environment, animals, and the transmission of Leptospirosis to humans. They collected samples from 16 sites, including soil, water, and animal samples, to analyze the presence of the pathogen.

Results: Field investigation found pathogenic *Leptospira* at 13 of 16 sites. Molecular analysis detected it in 24 of 50 samples. *Leptospira*-specific antibodies were found in 3 pig samples. Additionally, 5 cattle kidney swab were negative while one cattle tested positive with flying fox kidney swab indicated chronic carrier status.

Discussion: The field investigation and molecular analysis revealed a widespread occurrence of *Leptospira* in the study area, highlighting the potential risks it poses to humans and animals. The pathogen was found in soil and water samples during the field investigation, emphasizing the need to control its spread. Molecular analysis confirmed the presence of pathogenic *Leptospira* in various samples, further supporting its active circulation in the study area. Pigs were found to have *Leptospira*-specific antibodies, suggesting their potential role as contributors to transmission. Cattle and flying foxes were also identified as potential sources of transmission. Effective measures, including monitoring and surveillance of reservoirs, are necessary to manage the disease.