Public Health Association of New Zealand
Kāhui Hauora Tūmatanui o Aotearoa

Think Piece - Leptospirosis and floodwaters

A potential emerging issue?

Leptospirosis is an infectious disease caused by the bacteria leptospires which are usually found in animals such as rats, dogs, cattle, and pigs. This disease is found worldwide and can affect both animals and humans. In an RNZ article published in February 2023, the Auckland Regional Public Health Service (ARPHS) has noted an increase in leptospirosis cases across the region which could be linked to the larger rainfall events and the resulting flooding.

How is Leptospirosis transmitted?

Leptospirosis is transmitted to humans through contact with the urine of infected animals or contaminated water and soil. Even a splash or fine spray of urine or indirect contact with urine-contaminated water can spread large numbers of leptospires. Infection generally occurs through cuts and cracks in the skin or through the mucous membranes of the eyes, nose, or mouth. The bacteria thrive in moist or wet conditions and can survive for several weeks in groundwater and moist soil.

In New Zealand, the disease is commonly associated with working in high-risk occupations involving animals or animal products such as farming, meat processing and veterinary work or involving frequently contaminated environments such as those experienced by forestry or sewer workers.

In 2019, there were 82 cases of leptospirosis across New Zealand with the majority of cases related to occupations with exposure to animals (see report for more Leptospirosis statistics).

What are the signs and symptoms for diagnosis?

Leptospirosis can affect both animals and humans, and the severity of the disease can range from mild flu-like symptoms to severe illness and even death. Symptoms typically appear within 2 to 14 days after infection and include fever, headache, muscle aches, nausea, vomiting, diarrhoea, and a rash. In severe cases, the disease can cause organ failure (liver, lung, kidney), bleeding, and meningitis.

Diagnosis of leptospirosis can be challenging as the symptoms can mimic other diseases such as influenza. The diagnosis of leptospirosis is typically based on clinical signs and symptoms, laboratory testing, and a history of exposure to potential sources of

the bacteria. Laboratory-based tests such as blood tests are used to detect antibodies to Leptospire bacteria to confirm the diagnosis.

How can we prevent it?

Prevention and control of leptospirosis are primarily focused on reducing the exposure of humans to infected animals and avoiding contact with contaminated water or soil.

In the workplace, personal protective equipment must be worn (gloves, boots, protective suits or clothing, anti-splash goggles, etc). Vaccination is also an effective way to prevent Leptospirosis. In New Zealand, a vaccine is available for cattle, and farmers are encouraged to vaccinate their herds to reduce the risk of transmission to humans.

In the event of a wound, wash thoroughly with clean water and soap, disinfect with an antiseptic solution, and protect any cuts and grazes with waterproof covering.

To reduce the risk of leptospirosis, it is important to take precautions such as avoiding swimming or wading in potentially contaminated water such as lakes, rivers, and streams, particularly after heavy rains (water quality and safety hazards information available on safeswim.org.nz)

Public health significance?

In New Zealand, leptospirosis is listed as a notifiable infectious disease under the Health Act 1956, which means that medical practitioners must notify any suspected cases to the local medical officer of health as soon as possible. Leptospirosis is also regarded as a significant hazard under the Health and Safety in Employment (HSE) Act 1992. Employers should report cases of leptospirosis as a Notifiable Occupational Disease (NOD) to WorkSafe New Zealand. Early notification of cases helps to ensure that appropriate public health measures are taken to prevent the spread of the disease and appropriate data collection and analysis procedures are in place to prevent future outbreaks of similar circumstances.

Given the likelihood of further severe weather events in New Zealand, knowledge gained from previous outbreaks is important for preventative and protective measures for the future. For example, if there were more lepsopirosis cases in Auckland because of the flooding then an awareness campaign on how to hygenically navigate floodwaters (i.e., avoid where possible, no swimming or playing in floodwater notices) and how to hygenically navigate the resultant clean up (e.g., wear gloves, cover any cuts or grazes) would be important to implement.

Increased awareness of the disease and its potential consequences is essential to ensure the continued health and safety of both humans and animals in New Zealand.

If you suspect that you have been exposed to leptospirosis, it is important to seek medical attention within 24 hours to get tested. Treatment with antibiotics is effective if started early, and early diagnosis can help prevent severe complications.

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REFERENCES

Public Health Surveillance: Notifiable diseases in New Zealand: Annual Report 2019

https://surv.esr.cri.nz/PDF_surveillance/AnnualRpt/AnnualSurv/2019/2019AnnualNDReport_FINAL.pdf

Public Health Surveillance: Annual Notifiable Disease Tables (by year)

https://surv.esr.cri.nz/surveillance/annual_diseasetables.php

Ministry of Health: Leptospirosis

https://www.health.govt.nz/our-work/diseases-and-conditions/communicable-disease-control-manual/leptospirosis

LEPTOSPIROSIS: Information for medical providers

https://www.healthnavigator.org.nz/media/7635/wks-6-leptospirosis-medical-providers.pdf

Leptospirosis: Good practice guidelines

https://www.healthnavigator.org.nz/media/7636/wks-4-leptospirosis-prevention-and-control.pdf

RNZ article 24/02/2023 Salmonella and leptospirosis thriving in pot-cyclone conditions

https://www.rnz.co.nz/news/national/484818/salmonella-and-leptospirosis-thriving-in-post-cyclone-conditions

RNZ article 21/02/2023 Rise in leptospirosis cases could be linked to flooding

https://www.rnz.co.nz/news/ldr/484620/rise-in-leptospirosis-cases-could-be-linked-to-flooding