Te Niwha

Research Project Impact Case Study

Understanding the surveillance barriers and health burden of emerging disease threats for Aotearoa: *Vibrio* as a case study

Strengthening public health surveillance of emerging diseases for communities and Māori

Short Research Title

*** Not necessarily the project title - please make title accessible to a general audience***

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Introduction

Vibrio infections can cause mild to severe gastroenteritis or tissue infections. These bacteria thrive in aquatic environments, with infections occurring through contaminated kaimoana (seafood) or water. In recent years, Aotearoa New Zealand has seen a rise in Vibrio infections, particularly among Māori who likely fell ill after consuming local kaimoana. As climate change leads to warmer waters, the prevalence of Vibrio could increase in Aotearoa, as observed in other countries.

Aotearoa's public health surveillance system fails to capture all human vibrio infections, obscuring the true baseline and burden of these infections, as well as which population groups are most affected. This hinders effective planning for potential disease rate increases. Similar issues likely apply to other infectious diseases, but vibrio is particularly interesting due to its varied manifestations and environmental connections.

Previous research indicates that factors such as access to doctors, availability of faecal tests, and doctors' unconscious bias may hinder the diagnosis and reporting of cases in the surveillance system. This could explain why Māori are reported less frequently for gastrointestinal notifiable diseases, despite experiencing high hospitalization rates. Understanding the barriers faced by Māori is essential to assess the true burden of gastrointestinal disease and inform health service decision-making. Additionally, more research is needed on effective pathways for delivering public health messages and alerts to communities regarding outbreaks.

The project aims to:

1) Evaluate current public health surveillance data on Vibrio infections in Aotearoa to identify critical data gaps needing attention to improve surveillance processes and to estimate the burden of disease for Vibrio and other infectious diseases.

2). Conduct focus groups with hapū in the Waikato Harbour to identify public health barriers and concerns faced by Māori whanāu with gastroenteritis and to determine effective pathways for communicating trusted public health messages.

Results

- Using surveillance data (1998–2024), it was found that a range of *Vibrio* species have been reported to cause gastroenteritis and soft tissue infections in Aotearoa. However, the burden of disease is difficult to quantify due to the current notifiable disease definition for Vibrio infection not capturing all species of Vibrio and the lack of a centralised national communicable disease reporting system.
- Te Ora ki Whāingaroa have completed two of the twelve planned focus groups. Hence it is too early to have any preliminary findings, but we do envision that the findings from the focus groups will build upon insights gained from previous interviews with general practitioners and health professionals about what happens in practice when Māori present at a practice with gastrointestinal symptoms.

Impact

- The gaps within the current surveillance system identified in this study can support activities proposed within the Te Pou Hauroa Tūmatanui–Public Health Agency, Public Health Surveillance Strategy[1]. It can also serve as a resource for any intended national review of notifiable diseases and highlights the need to consider emerging pathogens such as Vibrio. Similar activities are ongoing internationally, especially as increases in Vibrio infections are being observed as a result of climate change. As an example, the refinement of the notifiable disease status for *Vibrio parahaemolyticus* has recently occurred in Victoria, Australia[2] and there are recommendations in Europe to develop a case definition for human *Vibrio* infection and a European level with

[1] https://www.health.govt.nz/system/files/2025-02/public-health-surveillance-strategy-2025-2030.pdf.
[2] https://www.health.vic.gov.au/health-advisories/notification-of-avian-influenza-and-vibrio-parahaemolyticus-infection. Accessed 27 March 2025.

compulsory reporting[2,3]. *Vibrio* infections have been notifiable in the United States of America since 2007[4] and would serve as a good model for Aotearoa. Surveillance that captures all Vibrio infections and risk factor information would potentially provide valuable information to monitor and predict changes. Such a system could direct risk management activities and support health service planning and resilience.

- It is too early to say what the impacts will be from the community focus groups, as we need to complete them and then undertake analysis with the Te Ora ki Whāngaroa team to assess where impacts may be made. However, the findings may inform on better primary care practices for Māori when they present with gastroenteritis. This in turn will improve the notification of Māori gastroenteritis cases within the public health surveillance system. The findings may also be used to co-develop better messaging pathways and robust networks within hapū to deliver public health alerts.

[3] EFSA Panel on Biological Hazards (BIOHAZ) et al. (2024). Public health aspects of Vibrio spp., related to the consumption of seafood in the EU. EFSA Journal. Available at: https://efsa.onlinelibrary.wiley.com/doi/epdf/10.2903/j.efsa.2024.8896.

[4] USCDC. Cholera and Other Vibrio Illness Surveillance: Annual Summary, 2019 Atlanta, GA: United States Centers for Disease Control and Prevention; 2024 [updated 20 May 2024. Available from: https://www.cdc.gov/vibrio/php/surveillance/annual-summary-2019.html