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

Short Research Title

Strengthening public health surveillance of emerging diseases for communities and Māori

Key researchers

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Background

Vibrio bacteria occur naturally in aquatic environments and can cause gastroenteritis or severe tissue infections. People typically become infected through consuming contaminated kaimoana (seafood) or contact with contaminated water. Aotearoa New Zealand has seen an increase in *Vibrio* infections in recent years, including outbreaks affecting Māori communities likely linked to recreational and commercial harvested kaimoana. As *Vibrio* thrives in warm water, climate change-driven temperature increases could amplify this risk, as observed internationally.

Current challenge

Aotearoa's public health surveillance system does not capture all *Vibrio* infections, obscuring the true burden and limiting understanding of which populations are most affected. This under-reporting hinders preparedness for emerging threats and likely applies to other infectious diseases. *Vibrio* is particularly significant because of its diverse clinical presentations and strong environmental linkages.

Study aims:

- **Evaluate surveillance data** (1998–2024) to identify gaps and estimate *Vibrio* disease burden.
- **Engage Māori communities** through focus groups with 10 hapū in Whāingaroa Harbour to understand barriers to care and co-design culturally appropriate health messaging.

Key Findings

1) Surveillance analysis

- Multiple *Vibrio* species cause gastroenteritis and soft tissue infections in Aotearoa.
- Current case definitions exclude some species, and the absence of a centralised reporting system likely results in significant under-reporting.
- Māori and Pacific people appear overrepresented among *Vibrio* cases. Limited exposure data suggest links to aquatic recreation and kaimoana consumption, consistent with *Vibrio* ecology.
- Broader trends show Māori are underrepresented in enteric illness notifications, indicating systemic gaps.

2) Community insights

Focus group kōrero revealed critical themes:

- **Health-seeking behaviour**: Whānau typically manage gastroenteritis or skin infections with rongoā Māori (traditional remedies). General practice visits occur only for severe illness or vulnerable individuals (pēpi [young children], kaumātua [elderly]).
- **Barriers to care**: Cost, appointment delays, dismissive treatment, and cultural disconnect foster distrust. Hospitals are sometimes preferred despite long waits.
- **Diagnostic challenges**: Requests for stool samples are rare and culturally sensitive (tapu), with embarrassment and unclear instructions cited as barriers.
- **Mātauranga Māori**: Indigenous knowledge guides safe kaimoana harvesting using environmental indicators, but these cannot detect *Vibrio* risk. Communities expressed eagerness to integrate scientific monitoring with mātauranga to protect whānau.
- **Messaging and legitimacy**: Government-imposed rāhui lack cultural legitimacy. Effective communication requires trusted messengers (kaumātua, hapū leaders) and visual, practical evidence.

Impact and Outcomes

1) Strengthening surveillance

This study highlights critical gaps in Aotearoa's surveillance system, supporting priorities in the Te Pou Hauroa Tūmatanui–Public Health Agency, Public Health Surveillance Strategy[1] and informing any national review of notifiable diseases. Internationally, similar activities are underway:

- Victoria, Australia recently updated *Vibrio parahaemolyticus* notification requirements [2].
- Europe is considering a unified case definition and compulsory reporting[3].
- The United States has mandated *Vibrio* reporting since 2007, offering a model for Aotearoa [4].

A comprehensive surveillance system capturing all *Vibrio* species and risk factors would enable early detection, trend monitoring, and targeted interventions—critical for climate change resilience and health service planning.

2) Improving Equity and Communication

Findings from hapū engagement can inform culturally responsive primary care practices and improve notification rates for Māori gastroenteritis and skin infections. Co-developing messaging pathways with hapū will build robust networks for timely public health alerts. Trusted, locally grounded communication strategies will enhance compliance and community trust.

3) Science Excellence and Broader Impact

This research demonstrates science excellence through:

- **Rigorous epidemiology** combined with **kaupapa Māori methodologies**, ensuring robust, relevant, and equitable evidence.
- **Collaborative design** uniting public health experts and Māori researchers to address surveillance gaps and community needs.
- **Innovative integration** of mātauranga Māori with scientific monitoring to prepare for climate-driven disease emergence.

By advancing surveillance systems, informing culturally aligned health practices, and strengthening community partnerships, this study enhances national preparedness for *Vibrio* and other emerging pathogens. It demonstrates how inclusive, methodologically sound research can deliver measurable outcomes—improved surveillance, better health equity, and resilient public health systems—while empowering Māori communities and safeguarding Aotearoa's future.