



EMERGING RISK IDENTIFICATION SYSTEM

Enhancing Food Safety in New Zealand

Signals

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Weak signals boosted by experience

In the context of horizon scanning, a “weak signal” is a piece of information that may or may not be important, but somehow sticks out from the background noise of incoming information. Often, the importance of the signal is not clear. Over time, related signals can appear, often from different information sources, and a clearer picture emerges. Apparently at odds with scientific methodology, identifying these weak signals is intuitive and experience-driven. Even systems applying machine learning to identify weak signals from long-standing databases still need experts to teach these *in silico* brains how to identify what is normal, and what is not.

Sometimes the ERIS team identifies signals that we think look important, even though there is not yet evidence of human illness nor foodborne transmis-

sion. It is experience telling us that a food safety risk could emerge.

The issue of increasing backyard chicken ownership (p2) is an example. We have recorded various signals related to this topic during the last few years, relating to outbreaks in other countries and signals of poor veterinary care. The issue was finally pushed to our full attention not because of an outbreak in New Zealand linked to backyard poultry, but when economic pressure became an important driver of consumer change in this country. In a second example, the latest signal indicating expansion of the açai fruit market (p2) says nothing about food safety, but our experience tells us this is important for informing this already-identified risk.

We await further signals of change.

News from the network

By early October, more than 60 cases of cryptosporidiosis were confirmed as being linked to an ongoing outbreak in Queenstown, New Zealand, with more cases under investigation. The source of infection had not been confirmed at that time, but the evidence strongly pointed to contaminated drinking water. The protozoan parasite, *Cryptosporidium*, is often transmitted via water in its environmentally hardy oocyst form. The outbreak prompted those involved to consider the risk of *Cryptosporidium* contaminating food, and to be alert for foodborne infections. *Cryptosporidium* oocysts survive high and low

pH, and are resistant to chlorine and other chemicals that would be effective against bacteria. They are sensitive to ultra-violet (UV) and heat (70°C or more). With water used to produce many foods, either as an ingredient or in cleaning and sanitation procedures, a *Cryptosporidium*-contaminated source water that does not have a UV or heat treatment step may inadvertently introduce this parasite to ready-to-eat food and beverage products. Foodborne cryptosporidiosis outbreaks are uncommon in New Zealand. This outbreak is a reminder that usually well-controlled hazards can re-emerge quickly.

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Summary of activities

Identified this quarter were

- 9 emerging issues concerning food or the food industry.
- Signals prompting updates to 5 identified emerging risks.
- 38 signals that did not meet the requirement of being a foodborne emerging risk to human health.

The ERIS Action Forum will decide if they want to undertake actions on these signals or identified emerging issues.

Featured emerging risks and issues

Tropane alkaloids in flour. During August, more than 200 illnesses were linked to a cornbread, broa de milho, distributed in Portugal. Patients reported symptoms, including dizziness and mental confusion, starting between 30 minutes and two hours after eating. Authorities found tropane alkaloids at very high levels in the flour, indicating contamination with seeds from *Datura* plants. These toxic plants can grow as weeds amongst crops. There have also been outbreaks caused by *Datura* leaves contaminating harvested spinach crops.

Increasing backyard poultry ownership in New Zealand. There are reports of more people in New Zealand getting their own hens. This has occurred in response to the increased cost of eggs, which has hit particularly hard due to animal welfare rules and supermarket mandates. Other countries have reported outbreaks of salmonellosis caused by people being in contact with backyard poultry or poultry faeces. Some cases of foodborne (egg-borne) illness are likely to have

occurred during these outbreaks but this has not been quantified. The increased exposure of people to backyard poultry creates opportunity for zoonotic diseases to spread, including campylobacteriosis.

Animal products in vegan or plant-based foods. UK researchers have found dairy and egg in some foods marketed as vegan or plant-based. The food labels were not always accurate. They also confirmed that most consumers do not expect animal products to be in foods marketed as vegan, and some expected plant-based foods to be free of animal products. In New Zealand, food labels must list ingredients and specific allergens, including milk and egg. Food producers can voluntarily become certified to use specific vegan or vegetarian labels that show their food contains no animal products. The UK work highlights that consumers might assume 'plant-based' means animal-product free. This is a consumer perception issue but can become a safety issue if allergen-sensitive consumers do not check ingredients.

Some other observations

- Açaí fruit are a dietary staple for some Brazilian communities. Information from a recent review indicates the international market for açaí is rapidly expanding. These fruits are known vehicles of illness for Chagas disease, caused by parasite (*Trypanosoma cruzi*) spread by “kissing bugs” (triatomines). The bugs can excrete the parasite onto food. Heat treatment kills the parasite so raw products carry the highest risk.
- There has been a resurgence of interest in “hyperimmune milk”, where dairy animals are immunised against an infectious disease and their milk, containing antibodies to the disease agent, can be consumed. While not a new concept, the CoVID-19 pandemic has stimulated research, including here in New Zealand. Raw hyperimmune milk can be pasteurised to remove any pathogenic microorganisms that might be present.
- A review has highlighted the potential for using the botanical left-overs from essential oil and herbal medicine production as a source of bioactive ingredients for foods.

[Link to market review](#)

[Link to outbreak review](#)

[Link to NZ research](#)

[Links to examples of studies on bacteria \(*Vibrio* and *STEC*\)](#)

[Link to flora biomass review](#)

The NZFSSRC member organisations funding ERIS are:

