



EMERGING RISK IDENTIFICATION SYSTEM

Enhancing Food Safety in New Zealand

Signals

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If you start looking, you may find it, but is it a problem?

Test methods are a critical part of ensuring food products are free from contaminants that pose a risk to consumers. It is becoming easier to look for microbiological and chemical hazards. Non-specific methods can be used to canvass all of the entities present in a sample. These improved techniques can increase both confidence and concern.

Food surveys have found potentially pathogenic microbes such as *Helicobacter*, *Enterocytozoon*, *Providencia* and *Kobuvirus*, potentially hazardous fungal toxins and environmental contaminants, and shown how widespread some contaminants are, like nanoplastics. Non-specific techniques applied to samples other than food have detected new microbes and chemical compounds that may or may not be hazardous to human health. Food or food packaging may be investigated for these next.

But should we worry? Fortunately, we have established processes for deciding if something in food actually poses a risk to consumers. This includes establishing whether the organism or substance can impact health (and under what conditions), and if exposure via the diet could lead to an unacceptable health risk.

Emerging risk systems like ERIS look for early signals of potential foodborne hazards, before there is enough information to decide if consumers are at risk. Perspective is important: The information may appear alarming but the hazard and associated risks must still be characterised. Also, 'new' hazards may already be managed through existing food safety procedures in place to control known foodborne hazards.

[Links to the FAO/WHO food risk assessment guidelines for microbiological and chemical hazards](#)

News from the network

Participants in the European Food Safety Authority's (EFSA) recent emerging risk meetings considered possible reasons for increased yersiniosis cases, unexpected ingredients in herbal teas, the dietary risks posed by gluten migration from food contact materials, trifluoroacetic acid in the environment and glass fibres in shellfish, among many other topics.

EFSA also published the One Health report for 2023. Overall, *Campylobacter* caused the highest number of cases, but *Salmonella* caused 77% of the foodborne outbreaks and 85% of the foodborne outbreak-associated cases (the main food vehicle was eggs).

The Food and Agriculture Organization of the United Nations (FAO) reported on the food safety implications of plant-based food products, precision fermentation and 3D food printing. The FAO also considered food safety opportunities and challenges associated with circular agrifood systems.

In a foresight exercise, a European consortium has considered the food safety implications from increased coastal and open-sea mining, marine aquaculture or sea transport and trade.

Links: EFSA ([EREN](#), [StaDG-ER](#), [One Health](#)), FAO ([new foods](#), [circular systems](#)), [ocean foresight](#) exercise

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Summary of activities

Identified this quarter were

- 3 emerging issues concerning food or the food industry.
- Signals prompting updates to 30 identified emerging risks.
- 65 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

Edible food coatings. Substances that can be applied to the surface of food to improve quality, shelf-life and safety are not new, but there has been a surge in research into novel edible coatings/films. Investigations include using substances derived from foods or food by-products. However, research is currently focused on feasibility and functionality rather than safety. Safety needs to be considered before the coatings are used on food traded in New Zealand.

Unanticipated risks: Vertical farming. Vertical farms can efficiently produce foods like leafy vegetables, herbs and microgreens, in a small area, close to (or next to) the point of sale. The potential food safety hazards associated with these systems were believed to be known and managed. However, after routine testing detected a high concentration of mercury on fresh produce in Singapore, the investigation identified an unexpected source: Mercury vapourised from the coating that protected the LED lights installed at the premises.

Milk analogue made from fish. A product made from powdered deboned fish (ponyfish) flesh, has been made by an Indonesian company, purportedly in response to a shortage of cows in some regions. There are chocolate or strawberry flavoured options which have been reported to have a similar taste to normal milk, or at least do not taste 'fishy'. While 'fish milk' may be high in protein, it would be less than ideal if the concentration of contaminants such as heavy metals were higher than the milk it is being substituted for. The species of fish used, where and how those fish are harvested, and the expected serving sizes are important food safety considerations.

Some other observations

- Multiple startup companies are attempting to produce human milk from lab-grown cells. Food safety concerns will need to be addressed prior to commercialisation.
- Details of an opisthorchiasis outbreak occurring in Italy during 2022 have been published. The parasite, *Opisthorchis felineus*, is endemic in some regions, where it is a recognised hazard associated with freshwater fish.
- A review calls for further research on semi-solid oleogels, to replace deep frying liquid oils. These products are under development, using different base oils and oleogelators.
- Formaldehyde solutions are used illegally to keep fish looking fresh for longer. With global fish consumption increasing, it is important to monitor whether formaldehyde adulteration is increasing. Test methods are critical for detecting this activity. More widely, Codex Alimentarius is finalising guidelines on the prevention and control of food fraud.
- The vitamin D content of foods might be increased through technologies such as UV irradiation, micro/nanoencapsulation and CRISPR-Cas9 genome editing. Some fortification methods may create detrimental compounds in foods but this is being considered.
- Researchers have questioned whether the degraded proteins in barley-based gluten-free beer may still pose a risk to consumers with coeliac disease.

Links to:

[Article on lab-grown human milk](#)

[Outbreak report](#)

[Oleogel review](#)

[Review of formalin detection methods](#)

[Codex draft food fraud guidelines \(Step 3/4\)](#)

[Review of new vitamin D food fortification techniques](#)

[Gluten-free beer review](#)

The NZFSSRC member organisations funding ERIS are:

