



**EMERGING  
RISK  
IDENTIFICATION  
SYSTEM**  
Enhancing Food Safety in New Zealand

# Signals

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## Food safety foresight: Integrating stakeholders

Putting effort into identifying emerging food safety issues gives organisations opportunities to consider and act on information without urgency. There is no right or wrong way to do this work. Often people within organisations are best placed to see the benefits of food safety foresight activities and to identify the most suitable methods. However, securing a mandate and the required resources to do this work can be challenging, especially when decision-makers need to prioritise managing their current food safety risks.

Some tips can be drawn from the ERIS experience, which embeds stakeholders in operations and decision-making.

**Understand the “why”:** What is the problem/need the work will address?

**Identify where the system fits:** How will the outputs link to end-users in the

organisation and their actions?

**Understand what you can and cannot do:** Set limitations on the scope of the work and what can be achieved within the available resources.

**Set expectations:** The framework, workflow and expected outputs need to be clear to stakeholders, along with an understanding that there will be a period of calibration as the system integrates into the organisation. End-users also need to get comfortable with uncertainty, since emerging issues are rarely supported by strong evidence.

**Build in evaluation:** Plan for a review and set qualitative and quantitative performance measures.

It takes time to adapt foresight activities and prove their value. Patience and long-term resources are needed.

## News from the network

As part of their Food Safety Foresight Programme, the Food and Agriculture Organization of the United Nations (FAO) hosted experts from diverse organisations to share their experiences in food safety foresight. Meeting participants supported the FAO to finalise a report that is expected to be published later this year as a resource to aid organisations in their food safety foresight activities.

New Zealand Food Safety have considered the food safety implications of egg price volatility caused by phasing out conventionally caged layers, costs from improved *Salmonella* controls, increasing poultry feed costs and outbreaks of HPAI.

The European Union published their report on antimicrobial resistance (AMR) for the period 2022–2023, which considers AMR in foods and food-producing animals. There were some encouraging downward trends in *E. coli* AMR, but resistance among *Salmonella* and *Campylobacter* isolates is concerning.

UK Health Security Agency published its view on the pathogen families that could pose the greatest risk to public health, and where research is most needed to reduce future risks. Human adenovirus, norovirus, enterovirus and pathogenic *E. coli* were listed.

Links: FAO [food safety foresight framework meeting](#), NZFS bulletin considering [eggs](#), EU [AMR summary report](#), UKHSA [press release/report](#)

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## Summary of activities

Identified this quarter were

- 6 emerging issues concerning food or the food industry.
- Signals prompting updates to 30 identified emerging risks.
- 33 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

**Foodborne transmission of *Edwardsiella tarda*.** *E. tarda* is a natural inhabitant of aquatic environments, a well recognised fish pathogen and an occasional cause of human infections. From 2013, *E. tarda* strains were reclassified as those that caused human infections (*E. tarda*), and those that caused disease in fish (*Edwardsiella piscicida*). Raw seafood consumption is a risk factor for human illness. It is anticipated that reports of foodborne *E. tarda* infections will increase with warming water temperatures, increased aquaculture and improved diagnostics.

**Carbon dots and their food applications.** Quantum dots (also called nanodots or just dots) have been identified as having potential food applications including bacterial inhibition in packaging and enhancing preservation of fresh fruit and vegetables as part of washable or edible coatings. A quantum dot property, tunable fluorescence, has been touted as a potential mechanism for pathogen detection.

Research on carbon and sulfur quantum dots has largely focused on the physical and functional characteristics, with little known about what their presence may mean for food safety.

**Edible electronics.** Edible, digestible electronics can be used for medical purposes but could be incorporated into food or packaging to provide information on food safety or quality. These are typically made from food grade materials to ensure there are no adverse health effects when ingested. Food by-products could be used to produce edible electronics. The main food safety concern is the potential toxicity of the parent materials and their degradation products, in both acute and chronic exposure scenarios.

## Some other observations

- A review of USA foodborne outbreaks suggested improvements at food processing and retail, e.g. better worker hygiene, temperature control, cross-contamination prevention.
- A survey of commercial citrus-based juices detected melamine that may have come from packaging or other sources, but the risk assessment did not identify health concerns.
- A review of current and emerging chemical food safety issues signals the potential for risk assessments to evolve to consider (1) chemicals formed within the body after a food is consumed (e.g. formaldehyde), and (2) mixtures of chemicals.
- A UK study found that people operating dark kitchens had challenges in maintaining hygiene (food transportation was a particular issue) and local authorities had difficulty identifying unregistered dark kitchens.
- Based on scientific evidence, the WHO have recommended that sodium salt could be safely replaced with potassium salt, but this recommendation does not extend to pregnant women, children and people with potassium-sensitive health conditions.
- The effectiveness of combining microwaves and ultraviolet to eliminate microorganisms from food is being explored. This is still in the research phase.

Links to:

[Outbreak review](#) by Holst et al.

[Juice survey](#) by Rash-eninia et al.

[Emerging chemical food safety issues review](#) by Liu et al.

[UK dark kitchen study](#) by Laheri et al.

[WHO guideline on the use of lower-sodium salt substitutes](#)

[Review of MWUV technology](#) by Chang et al.

## The NZFSSRC member organisations funding ERIS are:

