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The Economic Implications of Food Safety Incidents

Dr Malik Altaf Hussain (Senior Food Safety Officer at the Victorian Department of Health, Food Safety Unit, Australia), recently presented on behalf of the New Zealand Food Safety Science Research Centre (NZFSSRC) about what food safety incidents are, their contributing factors and their economic impacts. To follow is a summary.



Introduction

When dealing with any product that is destined for human consumption, a question that must always be answered is, "How do we ensure that the product remains safe until it is consumed by the person that purchased it?". Food supply chains range from those supplying local businesses, to those that export produce overseas, with new technologies and research constantly being developed with the aim of reducing the risk of food contamination as much as possible.

Food Safety Incidents

A food safety incident is "any situation within the food supply chain where there is a risk, potential risk or perceived risk of illness or confirmed illness associated with the consumption of a food or foods". Examples of food safety incidents being: food contamination, food recall and foodborne outbreaks.

Food safety incidents are defined by the following characteristics:

1. They pose a potential or actual risk to human health.
2. They can occur at any stage of the food supply chain.
3. A hazard (biological, chemical, physical, or allergen) is involved.
4. It requires a response to manage it.

The globalisation of food systems has posed new challenges to food safety, due to the increase of complexity and diversity of these food systems. This, in turn, means that a local food safety incident can rapidly escalate and become an international issue due to the interconnected and globalised food supply chains.

Globalisation and modernisation of food systems has led them to become more dynamic, where constant innovations and changes are resulting in models for food production, processing, distribution, and consumption that are always evolving. The modernisation of food systems allows for better management of existing food safety risks, but these innovations also bring about new opportunities for food to become contaminated with hazardous substances.

These on-going innovations and changes also bring with them multiple new opportunities for hazardous substances to contaminate food whilst it moves through the food system.

According to Centres for Disease Control and Prevention (CDC), challenges to food safety will continue to arise in unpredictable ways largely due to:

- Changes in food production and supply methods.
- New and emerging bacteria, toxins, and increased development of antibiotic resistance.
- Unexpected sources of foodborne illness (e.g., flour or meal replacement shake mixes).

Economic Impact

The impacts of a food safety incident, due to contamination within a food system, is divided in two aspects. The incident's impact on public health and its economic impact.

1. The impacts of food safety incidents to public health refer to the number of people that are either ill, hospitalised or in extreme cases, dead from having come into contact with the hazardous substance.
2. The economic impact of a food safety incident refers to any loss of business, loss of jobs and costs associated with the recall of the contaminated products. Also the subsequent investigations, treatment of the disease and the increase of regulatory expenses.

Within the costs of food safety incidents associated with foodborne outbreaks there are emerging models, epidemiological and economic models, that when integrated allow for the identification of the costs caused by that outbreak. Which can be divided into multiple categories, such as, whether the outbreak affected local food business, specific food sectors or the national economy. The costs and challenges linked to the management of a food safety incident will be different depending on its effect on the economy.

A case study on the rock melon *Listeria* outbreak in 2018 (Australia), demonstrated that:

- 6 people died as a result of the outbreak.
- Sales of the product went down 90%.
- There were \$AU 60 million of estimated losses to the melon industry.

Another case study on costs to a local food business (restaurant), demonstrated that the losses due to the outbreak were traced to:

- Business lost (due to the restaurant being closed to clean and sanitise, waiting for approval to open, etc).
- Discarding of potentially contaminated food.
- Testing.
- Marketing and advertising (to restore reputation).
- Penalties, fines, lawsuits and legal fees.
- Higher insurance premiums.
- Medical bill coverage of affected customers.

In light of these case studies, there are many reasons for those involved in food business and food systems to improve the safety of products. Doing so allows them to prevent financial loss, penalties and fines, maintain consumer confidence and so on.

To conclude, the implications of food safety incidents to the economy are very serious, since they may cause the closure of, for example, food businesses or companies, as well as long lasting damage to a particular sector of the food industry. As such it is imperative that those involved in food systems understand global safety issues, monitor changing conditions, ensure food safety when dealing with food goods (transport, processing, etc), and develop and promote food safety awareness by working with governmental agencies and professional associations.

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