

The role of food alerts and food-borne outbreaks in food chain surveillance

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Abstract

This article briefly presents the two French systems for food alert management and food-borne outbreak surveillance as well as a specific annual report for both systems. The food alert management system and food-borne outbreak surveillance are considered complementary to optimise consumer safety.

Keywords

Food-borne outbreaks, Alert, Food

Résumé

Place des alertes alimentaires et des toxi-infections alimentaires collectives dans la surveillance de la chaîne alimentaire

Cet article présente succinctement les deux dispositifs nationaux de gestion des alertes alimentaires et de surveillance des toxi-infections alimentaires collectives (Tiac), ainsi qu'un bilan annuel spécifique de chaque dispositif. Les systèmes de gestion des alertes alimentaires et de surveillance des Tiac sont présentés comme complémentaires aux dispositifs de surveillance des aliments pour optimiser la sécurité des consommateurs.

Mots-clés

Toxi-infection alimentaire collective, alerte, aliment

The food alert management system and food-borne outbreak surveillance are two schemes set up place in France with a primarily operational objective of identifying poor practices and at-risk foods and products, in order to limit consumer exposure to a hazardous food and/or prevent new human cases.

Alert management

The harmonised management of alerts in France is the responsibility of the Mission for Health Emergencies (MUS) of the Directorate General for Food (DGAL), which receives alerts (from France and other countries) and ensures they are managed appropriately and proportionately nationwide.

A food alert ("product alert") is any information related to a food origin which, if not addressed, can lead to a situation jeopardising consumer safety. An "unsafe" foodstuff as defined in Article 14 of Regulation (EC) No 178/2002 can be detected by operators as part of their own-checks, by the authorities in France or other countries (information from the Rapid Alert System for Food and Feed, RASFF) as part of official controls, or by consumers themselves. When one of the parties (operators, professional organisations or the authorities) learns of an alert, it is required to inform the other parties.

The situation is first assessed by the operator that placed the product on the market as soon as they learn of the non-compliance. In

Box. Definitions

Withdrawal (Article 2(h) of Directive 2001/95/EU): "Any measure aimed at preventing the distribution, display and offer of a product dangerous to the consumer". Withdrawal operations are the responsibility of the professional holding these products, in all stages of the food chain.

Recall (Article 2(g) of Directive 2001/95/EU): "Any measure aimed at achieving the return of a dangerous product that has already been supplied or made available to consumers by the producer or distributor". A product recall, i.e. information for consumers, is determined according to the severity of the potential or confirmed risk to human health in order to prevent consumers from being exposed to the hazard, as quickly as possible, and to inform them of the risks related to consumption of the product in question.

accordance with Regulation (EC) No 178/2002, when the product is on the market, the professional must take actions aiming to protect consumers (product withdrawal or recall, see Box), inform the local competent authority, and ensure that normal production conditions are restored. After the information is received by decentralised services, the report is verified and the situation is assessed in terms of its hazardous nature to determine whether the report should be classified as a national or local alert and whether the management measures taken by the professional are appropriate and proportionate.

Food-borne outbreak surveillance

Food-borne outbreaks are monitored at the national level by the French Public Health Agency, together with the Regional Health Agencies (ARSs) and in collaboration with the Departmental Directorates for Protection of the Population (DDecPPs), via a mandatory reporting system.

Physicians and managers of mass or social catering establishments are required to report a food-borne outbreak to the ARS and/or DDecPP. Reports can also be submitted by consumers or other people who have knowledge of an episode that could be a food-borne outbreak.

A food-borne outbreak occurs when there are at least two similar cases of generally gastro-intestinal symptoms that can be attributed to the same food origin.

Food-borne outbreaks are classified as follows:

- "confirmed": when a pathogen (bacterium, virus or parasite) is isolated in a sample of human origin (blood/stools), food leftovers, standard meals or the food's environment (e.g. fishing areas or surface samples),
- "suspected": when a pathogen has not been confirmed; it is then suspected using an algorithm for aetiological diagnosis taking into account the clinical signs, median incubation time and types of foods consumed,
- "of unknown aetiology": when a pathogen has not been confirmed or suspected.

When the ARSs and DDecPPs receive reports of food-borne outbreaks, investigations are undertaken to identify the responsible foods, the source of contamination, and any poor hygiene or food

preparation or storage practices where applicable. The ultimate objective is to take necessary measures (corrective measures, the closing of restaurants or zones, withdrawals, recalls) to prevent new food-borne outbreaks or new cases.

Report

"Product alert" report

This report is not an exhaustive inventory of all the non-compliances detected in France by operators or DDecPPs; it describes only those that have been reported at the central level, since they exclusively involve:

- products placed on the market,
- products distributed outside of their production *département* and/or recalled from consumers (regardless of the distribution scope).

In 2015, the MUS received 1082 food alerts: 952 of these originated in France (Figure 1) and 130 came from other countries. Of these 1082 alerts, the DGAL reported 117 via RASFF.

The main sources of alerts in France were: i) own-checks by French operators (retailers, producers), which accounted for over two-thirds of alerts, ii) official surveillance and control plans (SCPs), which accounted for 20% of alerts, and iii) consumer complaints, which were in third position, with almost 5% of product alerts (on the rise for the past few years).

In line with the regulatory targeting criteria (matrices and hazards explicitly covered by regulatory texts), the breakdown of alerts by product type places butcher's meat products at the top of the ranking, followed by fishery products and dairy products (Figure 2).

In addition, in line with the contaminants subject to regulatory criteria (in particular Regulation (EC) No 2073/2005), control pressure, and the assessment of the safety of contaminated products placed on the market, the five contaminants most commonly associated with product alerts were *Listeria monocytogenes* (32% of the dossiers processed by the MUS in 2015), followed by *Salmonella* (16%), heavy metals (9.1%, with over two-thirds detected as part of SCPs), pathogenic *Escherichia coli* and veterinary medicinal products (Figure 3). These dossiers led to 576 withdrawal operations and 272 recall measures in 2015.

Food-borne outbreak report

In the framework of the surveillance system for food-borne outbreaks, the identified hazards were mainly infectious agents and histamine. Other agents (toxins for example) were exceptional; they were generally monitored by a toxicovigilance programme.

An annual review of the food-borne outbreaks reported in France is available on the website of the French Public Health Agency: <http://invs.santepubliquefrance.fr/Dossiers-thematiques/Maladies-infectieuses/Risques-infectieux-d-origine-alimentaire/Toxi-infections-alimentaires-collectives/Donnees-epidemiologiques>.

In 2014, 1380 food-borne outbreaks were reported, affecting 12,109 people, including 649 (5%) who were hospitalised and two who died.

Food-borne outbreaks primarily occurred following meals in commercial or mass catering establishments (respectively 37% and 30% of the outbreaks reported). The proportion of food-borne outbreaks occurring further to family meals was 33% in 2014 (familial food-borne outbreaks increased by 22% compared to 2013 but were similar to the 2012 data).

The share of food-borne outbreaks where a pathogen was confirmed was relatively low (18%). For confirmed food-borne outbreaks, *Salmonella spp.* was the most commonly identified pathogen (43% of confirmed food-borne outbreaks). The other two most commonly confirmed/suspected pathogens associated with food-borne outbreaks were *Staphylococcus aureus* (30% of outbreaks) and

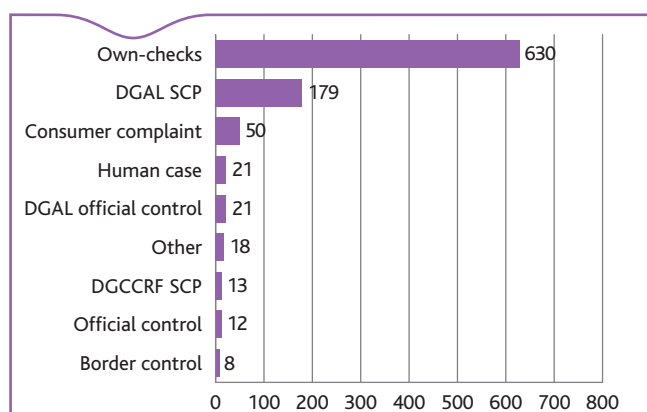


Figure 1. Breakdown of national alerts by detection source (2015)

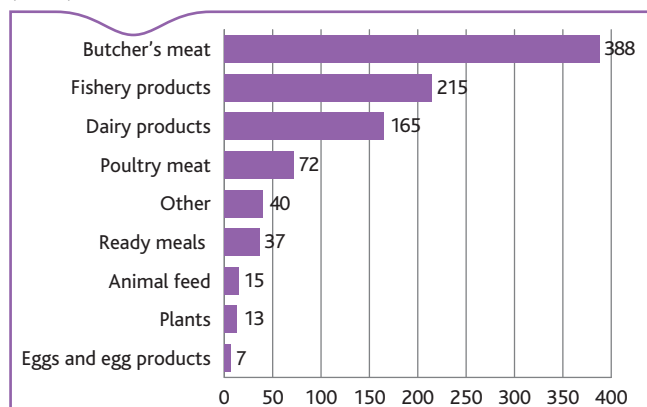


Figure 2. Breakdown of national alerts by product category (2015)

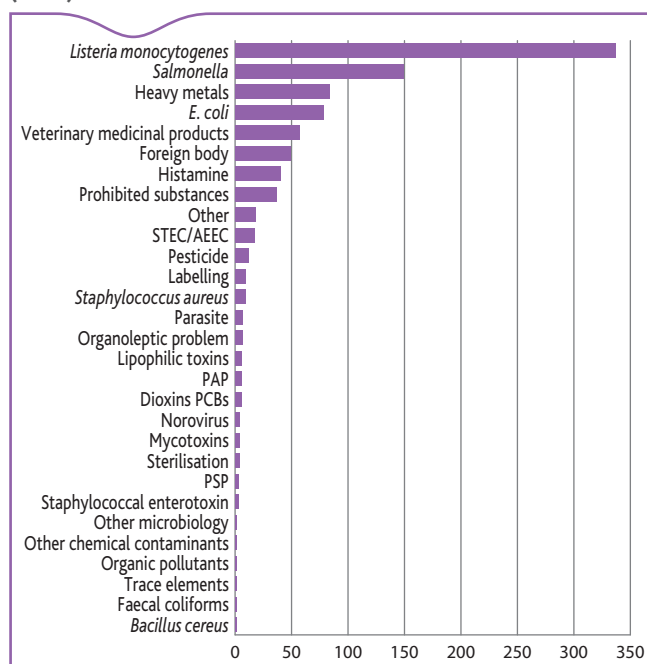


Figure 3. Breakdown of national alerts by responsible agent (2015)

Bacillus cereus (22%). In 13% of the reported outbreaks, no agents were detected or suspected.

In commercial/mass catering establishments, the most commonly encountered non-compliances were defective or unsuitable equipment, non-compliance with hygiene rules, poor handling by staff, and the contamination of materials (raw, intermediate or finished product).

Corrective measures were necessary for 490 (53%) food-borne outbreaks in commercial/mass catering establishments. The measures most frequently taken were employee information/training,

disinfection of the establishment, work in the establishment, and closing of the establishment. In 2014, 22 seizures and withdrawals/recalls were undertaken for foodstuffs.

Discussion - conclusion

The systems for food alert management and food-borne outbreak surveillance are capable of identifying situations involving a loss of sanitary control in food production and/or distribution processes, and rapidly responding. Over the long term, they also enhance knowledge regarding the origin and prevalence of contaminants in the food matrices most commonly associated with food-borne outbreaks.

Moreover, these systems help with the collection of information related to matrices and contaminants not taken into account in the planning of official controls (e.g. *Staphylococcus aureus* and its toxins, foreign bodies and labelling defects) and, when necessary, contribute to the detection of emerging contamination, in relation to the hazard analyses undertaken by operators as part of their own-checks.

However, these reports cannot be used to draw conclusions as to the safety of products placed on the market in France or to compare countries with one another, since they do not take into account the following in particular:

- differences between surveillance systems,
- production volumes and types,
- the number of samples to be analysed (own-checks or official controls),
- the definition, depending on the country, of a non-compliance giving rise to an alert. For example, there is a difference between Member States regarding the management of ready-to-eat products on the market that are contaminated by concentrations of *Listeria monocytogenes* below 100 CFU/g, leading to a high number of alerts in France,
- under-reporting for each system.

Solutions to optimise food chain control and surveillance can be considered by comparing various sources of information (alert and food-borne outbreak reports, results of other food chain surveillance

systems). This analysis should highlight priorities for action in terms of sanitary control for the various stakeholders in the food chain, including consumers:

- relevance of the own-check plans of operators,
- planning priorities for official controls,
- optimisation of the reporting system for alerts and food-borne outbreaks,
- recommendations regarding compliance with the controlled temperature chain (hot or cold preparation),
- specific hygiene recommendations for consumers.

References

Regulation (EC) No 178/2002 laying down the general principles and requirements of food law, establishing the European Food Safety Authority and laying down procedures in matters of food safety (especially articles 14 and 19).

Regulation (EC) No 2073/2005 on microbiological criteria for foodstuffs.

Regulation (EEC) No 315/93 laying down Community procedures for contaminants in food.

Regulation (EC) No 1881/2006 setting maximum levels for certain contaminants in foodstuffs.

Code de la santé publique: article R. 11-2, procédure de notification des maladies à déclaration obligatoire.

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