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Convergence on EU and USA Food safety Regulation approach, regarding foodborne outbreaks

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Abstract

International food trade facilitates transport of either fresh food or traditional products worldwide. This facilitates availability of foodstuff, and enables migration of unsafe food. The most common food safety risk are foodborne pathogens, since they are ubiquitous and can cause epidemic spread. European Union and USA markets are the most dynamic in the world, so it was necessary to obtain satisfactory regulations at national and international level. Official number of foodborne outbreaks in 2013 are 5196 for Europe and 818 for the US. FSMA is the latest US policy change in approaching to Europe practice of preventing rather than reparing.

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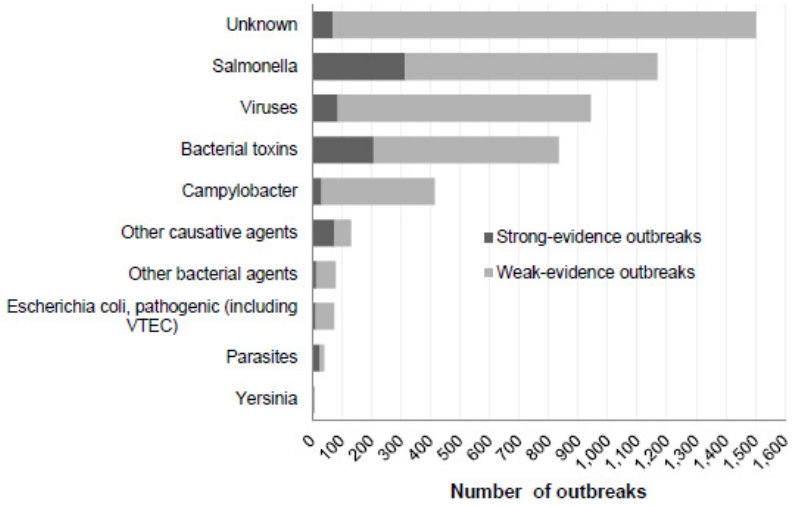
1. Introduction

Global trade offers many advantages regarding food accessibility, but also bears risks regarding food safety. The main goal of each regulation regarding food safety is to provide traceable and secure system of food from „farm/field to table“. There are various food safety risks: microbiological safety, residue contamination, chemical and physical spoilage, misbranding and mislabeling. Foodborne diseases caused by microorganisms are acute and intensive public concern accidents because of hardly predictable[1] volume and consequences. Economy impact is another concern affecting international trade system. Food standards are established through an elaborate procedure of international negotiations[2].

2. Outbreaks

Microbiological Annual report of EFSA for 2013, regarding foodborne outbreaks outlines that the main source of food poisoning is Salmonella (22.5%), followed by viruses (18.1%), Bacterial toxins (from Bacillus, Clostridium and Staphylococcus mainly), Campylobacter, other causative agents and E. Coli including VTEC[3]. In 2013, a total of 5.196 food-borne outbreaks, including water-borne outbreaks, were reported in the EU, including 839 and 4357 outbreaks with strong and weak evidence, respectively.



Bacterial toxins include toxins produced by *Bacillus*, *Clostridium* and *Staphylococcus*. Food-borne viruses include calicivirus, hepatitis A virus, *Flavivirus*, *Rotavirus* and other unspecified viruses. Other causative agents include mushroom toxins, marine biotoxins, histamine, mycotoxins and escolar fish (wax esters). Parasites include primarily *Trichinella*, but also *Cryptosporidium*, *Giardia* and other unspecified parasites. Other bacterial agents include *Listeria*, *Brucella*, *Shigella*, *Vibrio* and other unspecified bacterial agents. In this figure, the category '*Escherichia coli*, pathogenic (including VTEC)' also includes one strong-evidence outbreak due to pathogenic *E. coli* other than VTEC.

Fig. 1. Distribution of food- borne outbreaks by causative agents (EFSA annual report, 2013).

Center for disease control and prevention (CDC) annual report (Figure 2.) shows that same agents contribute outbreaks of foodborne diseases[4]. Along with chemical toxins from seafood, parasitic and viral cases, there were 818 reported outbreaks in 2013. Estimated number of domestic infections is dramatically larger as it is estimated that every 6th US citizen gets foodborne infection once a yea[5].

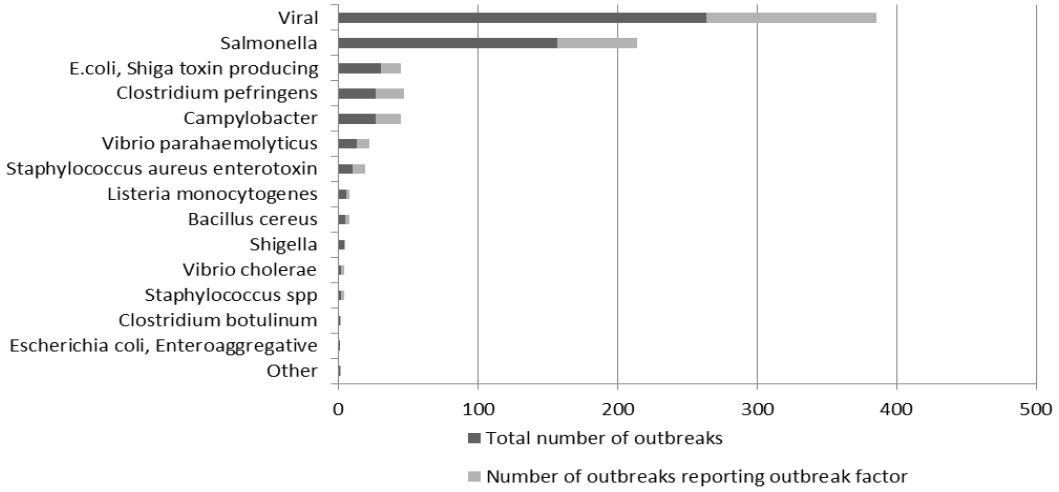


Fig. 2. Distribution of food- borne outbreaks by causative agents (CDC, Surveillance for Foodborne Disease Outbreaks United States 2013 Annual Report).

3. Recalls

European Union regulation regarding microbiological safety[6] highlights that food business operator has the main role and responsibility in obtaining traceable conduction of HACCP and other hygiene control procedures. Strong regulative supported by Inspection service mandatory controls of food business operators and market, as well as wide net of ISO 17025 accredited laboratories, provides control for EU food market. European Union annual report for 2013, claims 642 notifications regarding pathogens in food. Most of it were Salmonella findings in red meat (50), bivalve molluscs (17) and fruits and vegetables (58). Escherichia coli is reported in 70 cases of red meat and 47 bivalve molluscs. Also it is noticeable presence of viruses in molluscs and fresh friuts. There were 15 notifications of L. monocytogenes in food. Mandatory and voluntary recalls of FDA and FSIS, represent 403 cases (49 Listeria monocytogenes, 37 salmonella, two E.coli O157 and two E.coli O127) and 63 cases respectively (4 salmonella, 9 E.coli O157, 9 L. Monocytogenes, 25 undeclared allergens).

4. Food Safety Modernization Act (FSMA)

Almost one third lower US market, regarding population[7], has 6 times less reported outbreaks and also considerably less recalls due to pathogen microorganisms. Meat producing system in the United States is based on good practices and although it is supported by good practices and certifications, nevertheless there is no verification and/or auditing process[8]. The most valuable step to change this statistics was creation of FSMA. This act was signed in 2011 and provides several crucial changes in food safety approach, shifting focus from dealing with consequences of food mishandling to preventing outbreaks and economic losses.

5. Conclusion

The food sector has become the third most regulated sector in the EU, after automobiles and chemicals[9]. Food law's development has been prompted by incidents that occurred more or less spontaneously. Food safety modernization act is USDA response to stringent EU food law, as well as need for improving food safety and food trade security in the US.

Acknowledgment

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