AROUND US

The main events of epidemiological interest in the last months in the European Union and in the neighbour countries

The European Union Summary Report on Trends and sources of zoonoses, zoonotic agents and food-borne outbreaks in 2016: main outcomes and conclusions

On 12 of December 2017 EFSA and ECDC published the joint European Union summary report on trends and sources of zoonoses, zoonotic agents and food-borne outbreaks in 2016 (EUSR 2016)(EFSA Journal 2017;15(12):5077). The report presents the results of the zoonoses monitoring activities carried out in 2016 in 37 European countries (28 Member States (MS) and nine non-MS).

Data collected in 2016

The human data reported in the EUSR 2016 were collected within the Food and Waterborne Diseases and Zoonoses programme of the ECDC and based on data submitted via the European Surveillance System (TESSy), hosted at ECDC. TESSy is a software platform that is operational since April 2008 and where data on 52 diseases and special health issues are registered. The denominators used for the calculation of the notification rates were the human population data from Eurostat, as on 1stJanuary 2017.

Regarding data collection on food, animals, feed, and food-borne outbreaks (FBO), 28 MS and four non-MS European Free Trade Association (EFTA) countries (Iceland, Norway, Liechtenstein and Switzerland) submitted data and information on monitoring results in food, animals, feed and FBO. During 2017 reporting season, EFSA received also data and reports from pre-accession countries Albania, Bosnia and Herzegovina, the Former Yugoslav Republic of Macedonia, Montenegro and Serbia for some food, animal and feed matrices and FBO. Data were submitted electronically to the EFSA zoonoses database, through EFSA's Data Collection Framework (DCF). The zoonoses and food-borne outbreaks monitoring data obtained in the DCF, varied according to the level of data quality and harmonisation, thus the types of analyses done with these monitoring data, strongly depended on those levels of data quality and harmonisation. Therefore, the EUSR 2016 presents the data analyses according to a categorisation of zoonoses and food-borne outbreaks monitoring data:

1) the first category includes data collected among MS within harmonised monitoring or surveillance schemes, thus assuring the comparability of results among MS and their representability at European (EU) level;
2) the second category contains data derived from not fully harmonised monitoring or surveillance programmes, so no trend analysis is possible at the EU-level;
3) the third category embraces non-harmonised data, collected in various ways through different collection systems, and thus not comparable among MS and summarised only at national or EU level.

Examples of the data included in these three categories are given in Table 1.

Table 1. Categorisation of zoonoses and food-borne outbreaks monitoring data used in EUSR 2016

Category	Type of analyses	Type/comparability between MS	Examples
I	Descriptive summaries at national level and EU-level	Programmed and harmonised monitoring or surveillance	Salmonella national control programmes in poultry
	EU trend watching (trend monitoring)		Bovine tuberculosis
	Spatial and temporal trends analyses at the EU-level	Comparable between MS; results at EU-level are interpretable	Trichinella in pigs at the slaughterhouse
			Echinococcus granulosus at slaughterhouse
II	Descriptive summaries at national level and EU-level	Not fully harmonised monitoring or surveillance	Food-borne outbreaks data
	EU trend watching (trend monitoring)	Not fully comparable between MS; caution needed when interpreting results at EU-level	Monitoring of compliance with process hygiene and food safety criteria for L. monocytogenes, Salmonella and E. coli according Reg No 2073/20055
	No trend analysis at the EU-level		Monitoring of rabies
III	Descriptive summaries at national level and EU-level	Non-harmonised monitoring or surveillance data with no (harmonised) reporting requirements	Campylobacter
	No EU trend watching (trend monitoring)	Not comparable between MS; extreme caution needed when interpreting results at EU-level	Yersinia
	No trend analysis at the EU-level		Q fever
			Francisella tularensis West Nile virus Taenia spp.
			other zoonoses
			Toxoplasma

Summary human zoonoses data

Since 2015, campylobacteriosis is the most commonly reported zoonosis, representing in 2016 almost 70% of all the reported human cases, followed by other bacterial diseases: salmonellosis, yersiniosis and STEC infections. The number of reported confirmed cases of human campylobacteriosis was 246,307, with an EU notification rate of 66.3 per 100,000 population, representing an increase of 6.1% compared with 2015.

Regarding *Salmonella*, the top five most commonly reported serovars in human cases acquired in the EU during 2016 were, in decreasing order: *S. Enteritidis*, *S. Typhimurium*, *S. Typhimurium* variante monofasica, S. Infantis and *S. Derby*. The proportion of human illnesses due to *S. Enteritidis* continued to increase in 2016.

Shiga toxin-producing *Escherichia coli* (STEC) confirmed cases were 6,378 in the EU: as in previous years, the most commonly reported STEC serogroup in 2016 was O157 (38.6%) followed by O26, which has increased in the last 3 years, since 2014. In

2016, for the first time, serogroup O26 was the most frequently reported cause of haemolytic uraemic syndrome (HUS) instead of serogroup O157.

Based on data on severity, listeriosis was the most severe zoonosis, with the highest hospitalisation and case-fatality rate followed by West Nile fever. A statistically significant increasing trend of confirmed human cases of listeriosis in the EU was observed during the overall period 2008–2016, with 2,536 confirmed invasive human cases reported in 2016.

Surveillance and monitoring of the main zoonotic agents in the EU

Below the main outcomes of the EUSR 2016 for Campylobacter, Salmonella and other zoonotic agents in food, animals and related food-borne outbreaks.

Campylobacter
Monitoring data on Campylobacter from food and animals submitted to EFSA are collected without harmonised design (category III, table1), therefore these data allowed only descriptive summaries and precluded trend analyses and trend watching at the EU-level. Regarding food, few MS reported monitoring results, mainly concerning fresh meat from broilers and turkeys, and relative meat products. In these foods, the occurrence was, respectively, 36.7% and 11% in fresh meat from broilers and turkeys respectively. The occurrence of Campylobacter in milk and milk products (including cheeses) was around 1%. Regarding animals, 65% of the samples originated from broilers, in 14 MS, and from turkeys, in 5 MS and the highest apparent prevalence was reported in turkeys.

Salmonella
The data reported on food and animals showed that S. Enteritidis was markedly associated with laying hens, broilers and broiler meat. During 2015–2016, a similar increasing evolution was observed between the proportion of S. Enteritidis illnesses in humans and the EU flock prevalence of S. Enteritidis in laying hens. S. Typhimurium was reported in pigs and cattle and meats from these species and to a lesser extent from poultry and meat thereof. Monophasic S. Typhimurium was mostly reported and associated with (contact with) pigs and (consumption of) pig meat. S. Infantis was mostly reported in the broiler and turkey production chains, massively spreading along the entire broiler production system. S. Infantis represents an important public health concern, because of its frequent multidrug resistance.

In relation to the compliance of foods with Salmonella food safety criteria, the highest level of non-compliance was reported for certain meat categories intended to be eaten cooked (mechanically separated meat, minced meat, meat products preparations from poultry). For fresh poultry meat, the percentage of non-compliant samples was negligible. The overall percentage of non- compliance for the Salmonella process hygiene criterion for pig carcass swabs was about 2%.

Regarding Salmonella monitoring data originating from the Salmonella National Control Programmes in poultry, the target to be reached by the poultry categories under the control programmes was fixed at 1% for all with the exception of laying hens, which was 2% for all MS with the exception of Poland, for which it was set at 2.5%. The EU-level flock prevalence of targeted Salmonella serovars in breeding hens, broilers, breeding and fattening turkeys decreased or stabilised compared with previous years. However, the decreasing EU-level flock prevalence of targeted Salmonella serovars in laying hens reported since the implementation in 2008 of National Control Programmes, has been reversed into a statistically significant increasing trend during the last two years (Figure 1). Also, the EU prevalence of S. Enteritidis in laying hens notably increased. The trends in the EU flock prevalence of target Salmonella serovars in poultry flocks since the implementation of the National Control Programmes is displayed in figure 1.

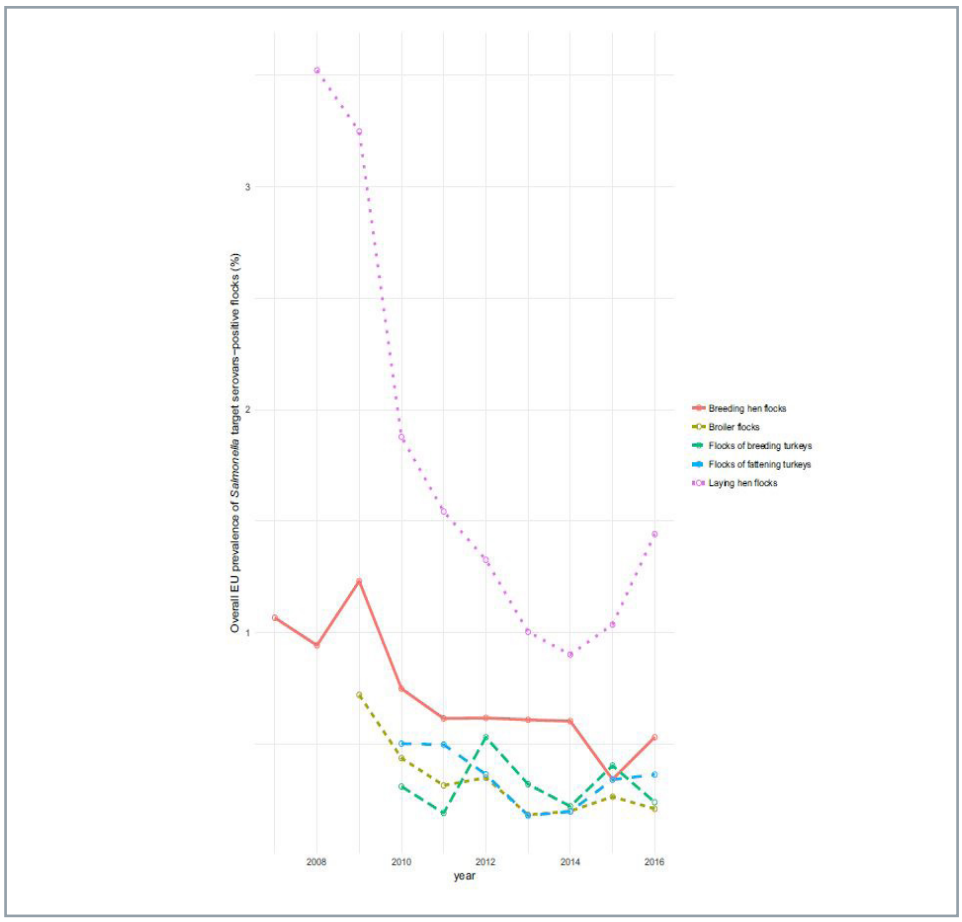


Figure 1.
Overall prevalence of poultry flocks positive for Salmonella target serovars, 2007–2016

Listeria

Monitoring of *L. monocytogenes* in foods is mainly based on data originating from the reporting obligations of MS under the EU Regulation (EC) No 2073/2005 on microbiological criteria. In food, compliance was assessed for 10 ready-to-eat (RTE) categories according to the food safety criteria listed in Regulation (EC) No 2073/2005. Among the different RTE food categories and across all sampling stages, *L. monocytogenes* was most frequently detected in 'fishery products' (5.6%) and 'fish' (4.7%), followed by 'pork meat products other than fermented sausages' (3.1%) and in 'soft and semi-soft cheeses made from raw milk' (2.5%). Listeriosis in animals is a relatively uncommon disease and most of the monitoring data on *L. monocytogenes* in animals provided by the MS are generated by non-harmonised monitoring schemes across MS and for which no mandatory reporting requirements exist. The 2016 data originated primarily from clinical investigations (61.8% of the total number of units tested) and more particularly from suspect animals (95.4% of the total number of units tested). Findings of *Listeria* spp. (mainly *L. monocytogenes*) were reported in various animal species and mainly in domestic ruminants (cattle, sheep and goats), originating primarily from clinical (suspect) investigations.

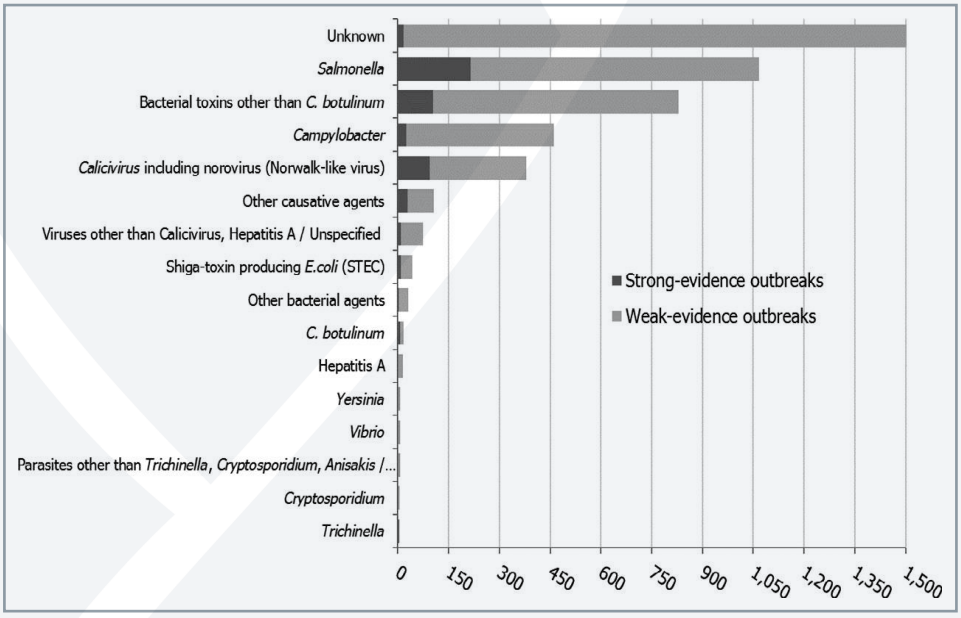
Shiga toxin-producing Escherichia coli

Similarly to what observed in humans, more STEC non-O157 serogroups than STEC O157 was reported in food samples, with STEC O26 being the most reported serogroup in 2016. This may be explained by the more widespread use by laboratories of the international standard ISO TS 13136:2012, which is unbiased in identifying specific STEC serogroups: the 91.5% of the samples tested during 2016 were tested by this reference method. The data generated by MS are based on investigation with non-harmonised sampling methods and obtained with different laboratory analytical tests; therefore, the STEC monitoring data are not fully comparable across the EU MS. Overall, the presence of STEC was reported in 2.5% of the 18,975 food samples and in 12.7% of the 2,496 animal samples tested. The highest proportion of positive food specimens was reported in meat samples, particularly from small ruminants (sheep and goat), followed by milk and dairy products. Such a finding consolidates the awareness of the importance of these food commodities in the spreading of STEC infections.

Food-borne outbreaks

In 2016, the most reported food-borne and waterborne outbreaks for which the causative agent was known were associated with bacterial agents (33.9% of all outbreaks). Bacterial toxins ranked second, among the causative agent group (17.7%), followed by viruses (9.8% of all outbreaks), other causative agents (2.2%) and parasites (0.4%). *Salmonella* was identified as the most frequently reported causative agent of food- borne and waterborne outbreaks at the EU level (22.3% of all outbreaks). Among bacterial agents *Salmonella* alone accounted for two-thirds of the outbreaks (65.8%) and, together with *Campylobacter*, for the vast majority of outbreaks caused by bacterial agents (94.1%). **Figure 2** shows the distribution of FBO per causative agent in the EU: a distinction has been made between FBO supported by 'weak' evidence and those supported by 'strong' evidence, based on the strength of evidence implicating a particular food vehicle; this evidence can be epidemiological, microbiological, descriptive environmental, or based on product tracing investigations. Strong-evidence food-borne outbreaks excluding waterborne outbreaks (n = 521) represented 10.9% of the total food-borne outbreaks recorded and were mostly (n = 313) associated with foods of animal origin. Of these, 41.5% involved 'eggs' and 'poultry meat' (23.0% and 18.5%, respectively), 22.4% involved 'fish and fisheries' 21.7% involved meat and meat products other than poultry, and 14.4% 'milk and milk products'.

Figure 2.
Distribution of food-borne outbreaks per causative agent in the EU, 2016



References

1. EFSA and ECDC (European Food Safety Authority and European Centre for Disease Prevention and Control), 2017. The European Union Summary Report on Trends and Sources of Zoonoses, Zoonotic Agents and Food-borne Outbreaks in 2016. EFSA Journal 2017;15(12):50772.

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