ECDC publishes annual zoonosis report for 2018

The European Food Safety Authority (EFSA) and the European Centre for Disease Prevention and Control (ECDC) has published its annual zoonosis report which (as these things contain a considerable amount of information and take a long time to compile) contains data for the year 2018.

The first and second most commonly reported zoonosis in humans were Campylobacteriosis and Salmonellosis, respectively. The European Union (EU) trend for confirmed human cases of these two diseases was stable during 2014–2018.

Shiga toxin-producing *Escherichia coli* (STEC) infections in humans were the third most commonly reported zoonosis in the EU and increased from 2014 to 2018.

Yersiniosis was the fourth most frequently reported zoonosis in humans in 2018 with a stable trend in 2014–2018.

The number of reported confirmed Listeriosis cases further increased in 2018, despite Listeria rarely exceeding the EU food safety limit tested in ready-to-eat food, which once again suggests that for vulnerable patients any exposure to *Listeria monocytogenes* may be problematic.

Salmonella in eggs remains one of the most common risks of food poisoning for EU consumers. Eggs and egg products accounted for 45.6 percent of strong-evidence Salmonellosis outbreaks. In 2018, 121 egg-borne Salmonellosis outbreaks were recorded involving 1,801 illnesses, 341 people hospitalised and two deaths.

Among the 1,229 Salmonella outbreaks with information on serovar, *Salmonella enteritidis* was top with 84.1 percent of outbreaks, followed by *Salmonella typhimurium* which caused 9 percent.

A large multi-country outbreak of *Salmonella enteritidis* linked to contaminated eggs from Poland was confirmed in 14 countries in 2016. Poland implemented control measures and cases declined in 2017 but increased again at the end of the year. It is likely this outbreak had existed since 2012 and was ongoing during 2018. An update will be provided by the EFSA and ECDC early next year.

Germany not seeing reduction in Campylobacter in poultry despite increased interventions

Stricter rules on Campylobacter have not yet led to a decrease in contamination based on figures from a German agency.

Almost a quarter of poultry carcasses in the country had Campylobacter counts of more than 1,000 colony forming units per gram (cfu/g) in 2018, according to the Federal Office of Consumer Protection and Food Safety (BVL).

The process hygiene criterion of no more than 1,000 cfu/g on broiler carcasses at slaughterhouse level was introduced from January 2018 across the EU to determine the presence of Campylobacter spp. in the poultry meat chain. The aim is to prevent poultry meat with high levels of Campylobacter per gram being sold. If high levels are detected, the food business must improve hygiene.

In 2017, prior to introduction of the legislation, 22.7 percent of carcasses in Germany exceeded the levels. In 2018, the rate remained virtually unchanged at 22.6 percent. BVL said ongoing zoonotic monitoring will show to what extent the introduced threshold leads to an improvement in the situation.

When the FSA Campylobacter reduction scheme started in the UK in 2014, the levels of poultry testing positive with counts of greater than 1,000cfu/g was 18.4%. This has now dropped to levels between 3.1 to 4.6%.

Levels of *Salmonella infantis* increasing in poultry

The likelihood of finding *Salmonella infantis* in poultry products is increasing, according to a study published in the European Journal of Public Health. It is claimed that several outbreaks of food poisoning caused by fresh chicken meat contaminated with *Salmonella infantis* have been reported recently.

The report points out that Regulation (EC) No 2073/2005 on microbiological criteria for foodstuffs sets Salmonella food safety criteria for some foods of animal origin. The criteria for fresh poultry is limited to *Salmonella enteritidis* and *Salmonella typhimurium* only, as they represent the main risk for public health. Whether food containing *Salmonella infantis* is considered unsafe and not placed on the market should be assessed on a case-by-case basis, according to the European Commission.

The human cost of Salmonellosis

We often express illnesses and fatalities associated with food poisoning outbreaks as mere statistics, but the consequences for those involved was highlighted this week as it was reported that the families of two people who died after being infected with Salmonella have spoken out ahead of an inquest into the deaths.

Sandra Blake and Stewart Graham died about the time Public Health England linked a 2018 Salmonella outbreak to items including meat bought at Chapman and Sons in Blackhall Colliery, County Durham.

Sandra's husband, Heath, also fell ill with similar symptoms but survived. Tests later confirmed all three had Salmonella infections. Heath and Sandra Blake began feeling sick in February 2018 with symptoms including diarrhoea. Sandra was seen at home by a general practitioner and admitted to North Tees Hospital in mid-February. She died two weeks later at age 68.

Stewart Graham was a former coach for Sunderland Football Club. The 66-year-old was found dead at his home in Shotton Colliery, in February 2018.

There were 19 confirmed and three suspected patients with Salmonella infections in East Durham and Hartlepool in early 2018.

A pre-inquest review hearing into the deaths took place at Teesside Coroner's Court this week with a date for a full inquest yet to be set.

Targeted natural antimicrobials

We have looked into the applications of natural antimicrobials on many occasions, but new research has suggested that essential oils from Lebanese plants could be used to selectively control foodborne pathogens. Experiments showed that whilst these natural antimicrobials had an inhibitory effect on all of the foodborne pathogens tested against, interestingly they did not have any effect on Lactobacilli. The researchers therefore suggest that the oils could target the pathogenic bacteria whilst having no detrimental effect on the natural flora (such as Lactic acid bacteria) which can be present in many foodstuffs.

In another piece of research published in the Journal of Food Protection, the antimicrobial efficacy of white mustard essential oil (WMEO) against serovars of Salmonella was investigated when the oil was used singularly and in conjunction with other antimicrobials such as carvacrol and thymol.

It was found that all of the antimicrobials had an inhibitory effect on *Salmonella typhimuruim* and that when used in combination, the natural antimicrobials exerted a synergistic effect.

A Dog is for life….not just for Christmas

With the obvious seasonal overtones, there has been yet another outbreak of Campylobacteriosis associated with the sale of puppies from Pet Shops in the USA. Marking the fourth year in a row for such illnesses, federal officials are investigating an outbreak of multidrug-resistant Campylobacter infections traced to contact with pet shop puppies.

At least 30 people across 13 states are infected with the outbreak strain of *Campylobacter jejuni*, according to an announcement from the Centre for Disease Control and Prevention. It is the same strain that affected people in an outbreak that lasted from 2016 through 2018.

Of 26 patients with available information in the current outbreak, four have been admitted to hospital. Overall the outbreak victims range in age from 8 months to 70 years old. The patients became ill between January and November this year.

A single, common supplier of puppies has not been identified, and the investigation is ongoing.

Decontamination of fresh produce by ultrasound decontamination techniques

New research published in the Wiley online library has described studies into Ultrasound decontamination.

The reports authors stated that this is an alternative non-thermal technology that can be applied to improve the microbial safety of fresh produce. The bacterial inactivation is predominantly attributed to cavitation, an occurrence that interrupts cellular arrangement and function.

With the problems of taint and residues associated with the use of sanitisers in the processing of vegetables, they claimed that it is imperative to develop and appraise novel approaches that contribute to the microbial safety of these fresh produce.

They concluded that the results of the study could guide the design of new ultrasonic fresh produce wash systems in addition to current during fresh produce sanitation.