



European zoonosis report for 2019

The annual zoonosis report for the year 2019 was issued by the European Food Safety Authority (EFSA) and European Centre for Disease Prevention and Control (ECDC) at the end of last month.

As it has been since 2005, *Campylobacter* was the most commonly reported zoonosis accounting for 50% of all recorded infections although the number of confirmed cases (220,682) did drop from the 2018 levels. Almost 20,500 people needed hospital treatment and 47 patients died.

Salmonellosis was the second most common gastrointestinal infection with 87,923 confirmed cases reported, which was also lower than the level reported in 2018. In total, 140 fatalities were noted, of which 46 were recorded in the UK.

The top *Salmonella* serovars continue to be *S. enteritidis*, *S. typhimurium* (including the monophasic variant) and *S. infantis*. Interestingly the number of detections of *S. mikawasima* (which caused a recent outbreak in Ireland as reported in the December bulletin), increased by 92.1 percent and 137.1 percent compared with the levels in 2018 and 2017 respectively, and this emerging serotype entered the top 20 list for the first time.

In 2019, 2,621 confirmed invasive cases of Listeriosis were recorded compared to 2,545 in 2018. Although the numbers remain low compared to *Campylobacter* and *Salmonella*, Listeriosis accounts for the highest proportion of hospitalised cases of all of the listed zoonosis and accounted for 300 fatalities.

There were 7,775 reported cases of STEC, which again was lower than the previous year. The most common serogroup was O157 but its proportion (compared to the other serotypes) has been decreasing since 2012.

Yersiniosis was the fourth most common zoonosis with 6,961 confirmed patients in the EU. Almost 650 people needed hospital treatment and two died. Germany and France had the most recorded cases. Infants and children up to 4 years old accounted for almost one-quarter of all confirmed patients.

A zoonosis is defined as an infectious disease which is transmitted from animals to humans through either direct contact, food, water or the environment.

FSA renew warnings on Breaded Poultry

We reported on the ongoing *Salmonella* outbreak linked to the handling and consumption of frozen breaded poultry products in last year's October and December bulletins, but the Food Standards Agency has recently renewed their advice for a third time to consumers as the number of reported cases of confirmed Salmonellosis now approach 500.

Four further recalls were issued in February and March, meaning that there has been at least 8 different product recalls in relation to this outbreak.

The Food Standards Agencies in England and Scotland in conjunction with the Public Health Authorities in England and Wales issued a joint statement urging people to take care when storing, handling and cooking chicken items at home, such as nuggets, goujons, dippers, poppers and kiev's.

In patients where information was available, a third have needed hospital treatment and four people have died. It is not known whether *Salmonella* infection was a single or contributory factor in the deaths.

Two distinct strains of *Salmonella enteritidis* have been implicated in the outbreak.

PHE release 2019 Listeriosis summary

Public Health England has issued the latest annual Listeriosis summary for England and Wales which covers the year 2019. The summary illustrates the reason why *Listeria* is at the forefront of people's minds in food manufacturing despite the numbers being relatively low. There were only 142 reported cases of Listeriosis in England and Wales in 2019, but these cases were responsible for 23 fatalities. In addition, pregnancy-associated infections accounted for 18% of all reported cases with a third of pregnancy-associated cases resulting in stillbirth or miscarriage.

There were 4 Listeriosis outbreaks investigated in England, including the national outbreak associated with the consumption of prepacked hospital sandwiches which affected 9 extremely vulnerable people, 7 of which sadly died.

Botulinum incident in Denmark

The National Serum Institute in Denmark has confirmed three cases of botulism poisoning from a group of six company employees who shared a meal together. In addition to the three confirmed cases, two of the other people who ate the meal are displaying mild symptoms and are currently being examined.

Ultrasonic cleaning of salad leaves

A new and innovative way of ensuring that salad leaves are free from potential pathogens such as *Listeria monocytogenes*, *Salmonella* and *STEC* has been described in a recently published article in the journal *Ultrasound in Medicine and Biology*. Scientists used “acoustic water streams” to clean spinach leaves directly sourced from the field crop, then compared the results with leaves rinsed in plain water at the same velocity.

Washing with chlorine or other disinfectants is not always recommended and the microscopic structures and tiny crevices in the leaf surface means washing with plain water can be ineffective and may leave an infectious dose of potentially pathogenic microorganisms on the leaf.

Scientists at the University of Southampton described the technique, in which streams of water carry microscopic bubbles and acoustic waves down to the leaf. The creation of a so called “sound field” sets up echoes at the surface of the leaves, and within the leaf crevices, that attract the bubbles towards the leaf and into the crevices. The sound field also causes the walls of the bubbles to ripple very quickly, turning each bubble into a microscopic ‘scrubbing’ machine. The rippling bubble wall causes strong currents to move in the water around the bubble, and sweep the microbes off the leaf. The bacteria, biofilms, and the bubbles themselves, are then rinsed off the leaf, leaving it clean and free of residues.

The researchers claimed that the acoustic cleaning also caused no further damage to the leaves and demonstrated the potential to extend food shelf life, which has important economic and sustainability implications.

Bacteriophage cocktail used to reduce *E coli* 0157 on baby spinach leaves

With a link to the above, a recent article published in the on-line *Journal Microorganisms* describes how a bacteriophage cocktail has been shown to effectively reduce the numbers of *E coli* 0157 in baby spinach leaves both with and without an organic load. One of the problems associated with traditional chlorine based wash systems is that the effectiveness of the chlorine wash can be diminished when there are high levels of organic material. This can lead to problems in maintaining the correct dosage of chlorine in industrial fresh produce wash systems. The study showed that the numbers of *E coli* 0157 were significantly reduced by the incorporation of the bacteriophage cocktail when there were both low and high associated organic loads introduced into the system.

The use of Lactic Acid Bacteria probiotics to inhibit *Salmonella* in poultry

Research carried out in China has claimed to show that Lactic Acid Bacteria (LAB) obtained from the intestines of some chickens can effectively inhibit the colonisation and adhesion of *Salmonella* in chicken intestines through competitive inhibition in and around the intestinal epithelial cells. The report suggests that the bile tolerant LAB cultures could be administered as probiotics and the authors speculated that the incorporation of LAB during the later stage of chicken feeding might curtail *Salmonella* outbreaks in the breeding and egg production processes.

Survey highlights lack of awareness of *Campylobacter* and its food safety risks

There is low awareness of *Campylobacter* and its impact on public health despite it being the main cause of food poisoning in the UK, according to a project on how people perceive food-related risks. Results come from an on-line survey commissioned by the Food Standards Agency which took place in March 2017 but results were only published last month.

The objective was to improve the FSA’s understanding of consumer perceptions on food risk in order to help develop the targeting, messaging and effectiveness of communication with the public. The survey showed that respondents felt that they were more knowledgeable on food allergens and food intolerance. *Salmonella* scored highly on both knowledge and concern, but there was relatively low awareness about *Campylobacter* despite it being responsible for most cases of food poisoning in the United Kingdom.

The risks from petting zoos once again highlighted

Although animal petting zoos provide the opportunity for children and adults to interact with animals, it is acknowledged that this close and intimate contact with animals carries a risk of exposure to zoonotic pathogens and antimicrobial-resistant bacteria. The significance of this risk has been quantified by recent research carried out in Switzerland.

Animal faecal material was collected from six petting zoos and one farm fair, and from the 163 faecal samples which were analysed, 75 (46%) were found to contain the *stx1/stx2* genes, indicating the presence of Shiga Toxin E *Coli*. *Salmonella* was detected in a faecal sample from camels. A total of four ESBL-producing *E. coli* strains were isolated from faeces of goats and camels. Antimicrobial resistance profiling revealed two multidrug-resistant strains of *E. coli* with resistance to ciprofloxacin, gentamicin and azithromycin, all of which are important drugs for human medicine. No Methicillin Resistant *Staphylococcus aureus* (MRSA) was detected in any of the samples tested. The report also stated that there were inadequacies with regard to hygiene information and handwashing facilities in all of the venues which were visited.