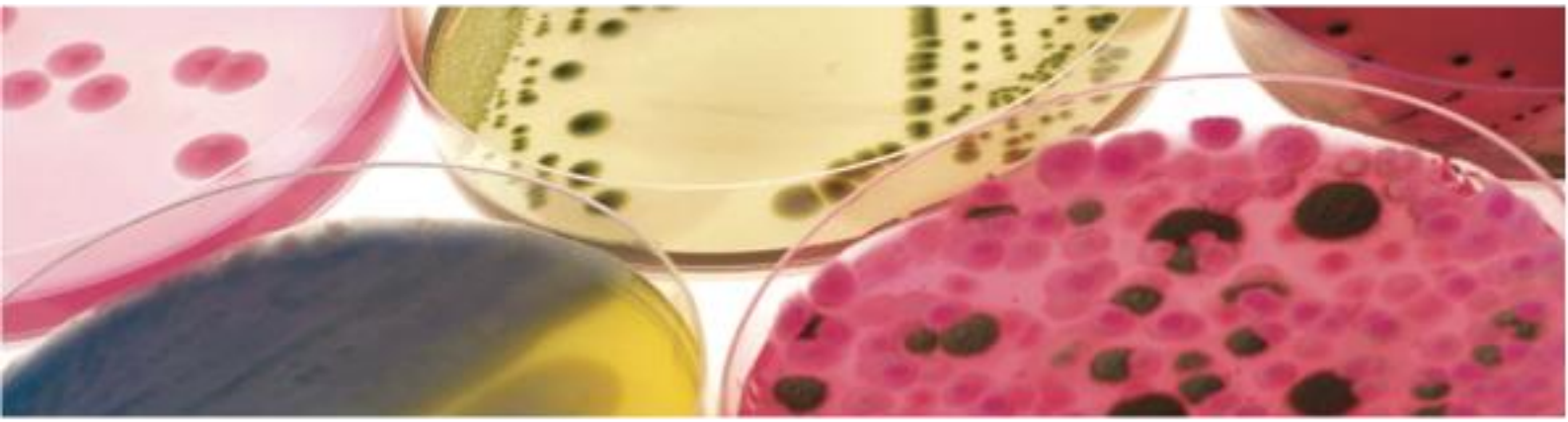
Microbiology bulletin 60

December 2018



Foodborne infections increase for England and Wales

In the October bulletin we considered the possibility that the long hot summer and resulting higher ambient temperatures may have caused a potential increase in the number of food borne outbreaks. The latest data released by Public Health England reveals an increase in the number of laboratory confirmed pathogens from January to October 2018 compared to the same period last year.

Campylobacter rose from 47,675 infections from January - October 2017 to 51,497 in the same period this year. Salmonella was up from 7,319 cases last year to 7,631 infections and STEC O157 increased from 530 to 578 in the same period. The most common Salmonella serotypes continue to be Salmonella enteritidis and Salmonella typhimurium. Cryptosporidium, Guardia, Shigella and norovirus infections also went up with rotavirus the only one to decrease based on the gastrointestinal infections reported.

It is important however not to jump to conclusions on the causes of any apparent increase as numbers of infections do naturally vary from year to year. This may be due to changes in laboratory methods, outbreak activity, pathogen seasonality or as the result of food safety or public health interventions. It is important that the figures are not viewed in isolation and trends should only be measured over years using appropriate methods that account for the inter and intra-year variability.

But…Campylobacter levels continue to drop in poultry

There was some good news however as the percentage of fresh whole chickens produced in the UK positive for the highest level of Campylobacter contamination has declined compared to earlier this year. For the top 9 retailers, 3.5% of chickens samples tested from July to September this year carried more than 1,000 cfu/g of Campylobacter.

The figure for the previous results from April to June 2018 was 3.7%, while for July to September 2017, it was 4.6%. The expected seasonal pattern is increased contamination in the summer and reduced levels in winter and spring months.

On average 100 European outbreaks per week in 2017

In the 2017 zoonosis report published by the European Centre for Disease Prevention and Control (ECDC) and the European Food Safety Authority (EFSA), it has been revealed that on average there were 100 food and waterborne outbreaks reported every week. A total of 5,079 outbreaks were reported, which included 43,400 individual cases, 4,541 hospitalisations and 33 deaths. France notified the most outbreaks (1,378) and made up more than a quarter of all those reported in 2017 in the EU.

Analysis of 643 strong-evidence outbreaks (12.7 percent of the total) revealed that 60 percent were associated with food of animal origin; 'Meat and meat products' was the food group most frequent involved (121 outbreaks), followed by 'Fish and fishery products' (106 outbreaks), 'Eggs and egg products' (105 outbreaks) and 'Milk and milk products' (49 outbreaks).

Salmonella were the top cause of foodborne outbreaks with Salmonella enteritidis the most common serotype, causing one out of every seven outbreaks. Poland and Slovakia accounted for 63.3 percent of all outbreaks caused by Salmonella enteritidis. The 1,241 Salmonella outbreaks made up 24.4 percent of the total number.

Salmonellosis had the highest impact with 9,600 (22.1 percent) of all outbreak cases, 49 percent of hospitalisations and 33.3 percent of deaths. Salmonella in 'Eggs and egg products' caused the highest number of strong-evidence outbreaks (99 outbreaks).

Listeria monocytogenes was identified in 10 foodborne outbreaks affecting 39 people in 6 member states and STEC was identified in 48 foodborne outbreaks affecting 206 people in 11 member states.

Outbreaks by bacterial toxins were reported by 20 member states and were associated with toxins by Clostridium perfringens, Staphylococcus aureus and Bacillus cereus. Outbreaks by hepatitis A increased remarkably in 2017, from 17 in 2016 to 90 outbreaks. This was mainly due to reporting by Poland (99.4 percent increase, 64 more outbreaks compared to 2016).

Salmonella linked to Tahini products

The Israeli Ministry of Health has reported almost 40 cases of Salmonella infection linked to tahini products that have also affected five people in the United States. Tahini products packed under five brands were recalled in the U.S. last month after a sample tested positive for a strain of Salmonella concord that had infected people in the country. The Ministry of Health found a possible connection between the Salmonella infections and consumption of the tahini products. Just in case you are wondering (I didn't know), Tahini is a sesame seed paste, and is a staple of Middle Eastern and Mediterranean cooking.

Further applications for natural antimicrobials

We have considered many potential uses and applications for natural antimicrobial products in previous bulletins and this month new research has shown how eugenol, a natural antimicrobial phenylpropanoid found in cloves, nutmeg, cinnamon and basil can reduce potential pathogens in fresh produce. Researchers found that adding eugenol to the wash water of tomatoes significantly reduced the levels of pathogens such as Salmonella and E coli which has been spiked onto the surface of the product.98% of all isolated also shared a sequence type with clinical cases, suggesting that most of the strains have the ability to act as pathogens.

Microbiology bulletin 60 (continued)

December 2018

Update on the Romaine lettuce STEC outbreak

There have been further developments in the outbreak of 0157 H7 associated with the consumption of Romaine lettuce as reported in last month's bulletin.

The FDA and CDC have traced the outbreak to a single farm in Santa Maria California, and state that the outbreak strain of 0157 H7 has been found in the sediment of an irrigation pond at the farm.

The FDA however stressed that they are also continuing to test samples from other locations as no single establishment is in common across the investigated supply chains. This indicates that the outbreak may not be explained by a single farm, grower, harvester, or distributor.

France – Salmonella outbreak linked to raw milk cheese

The French Ministry of Agriculture and Food said that an outbreak of Salmonella which has possibly affected 80 people has been traced to a raw milk cheese known as reblochon which is manufactured by Fromagerie De La Tournette.

Denmark – Salmonella outbreak linked to pork

Officials in Denmark are investigating a Salmonella outbreak with 32 cases and 19 hospitalisations. Initial information points to fresh pork as the source.

Infections with a monophasic strain of Salmonella typhimurium (which is often found in pigs) have been reported to the Statens Serum Institut (SSI) since mid-October.

Typically Salmonella typhimurium has the serotype O=4, H=i,2, but this monophasic strain only exhibits the H=i antigen, which makes it easily identifiable. This strain has also been found to carry resistance to several antibiotics such as ampicillin, sulfamethoxazole and tetracycline. Whole genome sequencing (WGS) has found the strains are closely related and identified by sequence-type 5296. A spokesperson for the SSI stated that the serotype is common in Denmark but the WGS sequence type is new and has not been seen in Denmark before.

Christmas is coming!!!

It must be getting close to the festive period as the FSA and PHE have both issued advice on food safety, including allowing adequate time to thaw and cook frozen Turkeys, separation of raw and cooked meats, work surfaces and utensils, and checking refrigeration temperatures to ensure the correct storage of any leftover food.

As my thoughts drift towards a lovely traditional Christmas dinner, it just leaves me time to wish you all a Merry Christmas and a Happy, peaceful, healthy and prosperous New Year.