



Food Standards Scotland issue a position statement on STEC

Food Standards Scotland has issued a public information statement to make clear its position regarding the presence of Shiga Toxin E coli in food.

Based on the existing expert scientific evidence, reinforced by a recent report from the World Health Organisation and United Nations, Food Standards Scotland has advised that the presence of any STEC in a ready-to-eat food is a potential risk to health, and could cause food poisoning.

This advice is given to local authorities, the food industry and consumers to ensure there is no room for misunderstanding, and is supported by Scotland's Chief Medical Officer and public health bodies such as Public Health England and the Food Standards Agency.

Professor Norval Strachan, Independent Chief Scientific Adviser for Food Standards Scotland, said: "STEC, or Shiga Toxin-producing E. coli, are a group of different types of E. coli bacteria found in the guts of animals such as cattle and sheep, which can make their way into the food chain via the animals' faeces. Illness caused by STEC can be very serious for young children and older people in particular, and can cause severe disease, and even death. As few as 10 - 100 cells of STEC can cause infection".

The communiqué also quotes a recent WHO and UN report which states that "It is not prudent to regard any STEC strain as being non-pathogenic or not posing a health risk, as all STEC strains probably have the potential to cause diarrhoea, especially to susceptible individuals."

Based on current scientific knowledge, STEC strains with stx2a and adherence genes, eae or aggR, have the strongest potential to cause infection, but it is acknowledged that cells can lose the ability to express these genes so their absence should not always be taken as an indication that the STEC isolate is non-pathogenic.

Food Standards Scotland implicated Errington Cheese as the source of an E coli 0157 outbreak in 2016 although none of the STEC isolates from the cheese were found to contain the genetic virulence markers

Do Helicobacter pylori infections have a foodborne origin?

A review article published recently in the *World Journal of Gastroenterology* looked at the current understanding of the etiology of *Helicobacter pylori* infections and explored the evidence to suggest that this maybe a foodborne illness.

H pylori is an organism that is widespread in the human population and is sometimes responsible for some of the most common chronic clinical disorders of the upper gastrointestinal tract in humans, such as chronic-active gastritis, and duodenal and gastric ulcer disease.

The routes of infection have not yet been firmly established, and different routes of transmission have been suggested, although the most commonly accepted hypothesis is that infection takes place through the faecal-oral route and that contaminated water and foods might play an important role in transmission of the microorganism to humans.

Furthermore, several authors have considered *H. pylori* to be a foodborne pathogen because of some of its microbiological and epidemiological characteristics. *H. pylori* has been detected in drinking water, seawater, vegetables and foods of animal origin, and it has been shown that *H. pylori* can survive in complex foodstuffs such as milk, vegetables and ready-to-eat foods.

The review article stated that epidemiological evidence and the occurrence of *H. pylori* in foods of animal origin, vegetables and water corroborate the hypothesis advanced by numerous authors that *H. pylori* may be a foodborne pathogen. However, it does acknowledge that to confirm a definite foodborne and waterborne role of *H. pylori* transmission, more surveys are needed on the presence of *H. pylori* in other foods of animal origin, particularly in seafood, and on the survival ability of this microorganism in dry fermented sausages and dairy products.

The article concludes that the development of molecular biology methods and traditional bacteriological isolation methods are needed before any firm conclusions can be drawn on the role of *H. pylori* as a foodborne and waterborne pathogen.

Scotland release 2018 Salmonella and Campylobacter annual summaries

Health Protection Scotland has released its annual summaries for both Salmonella and Campylobacter infections. The number of Salmonella infections decreased from 840 cases in 2017 to 751 cases in 2018 with *Salmonella enteritidis* being the most common serotype, accounting for 37% of all infections.

The number of Campylobacter infections increased slightly from 5795 cases in 2017 to 6096 in 2018. Most cases of Campylobacter infection are sporadic, and no general outbreaks (defined as affecting more than one household) of Campylobacter were reported.

Ireland – Salmonella cases increase

The latest data to be released by the Health Protection Surveillance Centre in Ireland shows that the recorded number of Salmonella infections in 2017 rose by 37% compared to the previous year. The rise was mostly because of one large outbreak of *Salmonella brandenburg*, with 71 cases. However, the HPSC claimed that the overall incidence of Salmonellosis in Ireland remains low compared to other parts of Europe.

Denmark - Salmonella outbreak linked to pork - update

A quick update on the outbreak of monophasic *Salmonella typhimurium* in Belgium which we reported in the December bulletin. Since mid-October 2018, 47 cases of this unusual monophasic and drug resistant strain have been reported. Patients include 23 women and 24 men aged from birth to 97 years old, with 27 people needing hospitalisation. A case-control study involving 21 patients and 67 healthy controls pointed to a type of spiced sausage called medisterpølse as the source of the outbreak, but not all patients ate this product so it is possible there is other pork contaminated with *Salmonella*.

Israel/USA – Salmonella outbreak linked to Tahini products - update

In the December bulletin we also reported on a *Salmonella concord* outbreak linked to various imported Tahini products, and this outbreak continues to make news as the FDA have now revealed that they have also detected a second *Salmonella* serotype (*Salmonella tennessee*), in some packets of Chocolate Sweet Tahini Halva Spread. The company manufacturing the product has also come under scrutiny for not instigating a product recall at the time of the original FDA alert. There is concern that many affected products may still be in consumers kitchens as the products are ambient shelf stable with long shelf lives with expiry dates well into 2021.

European Salmonella outbreak linked to infant formula rice milk

Three companies (Sodilac, Lactalis and Laboratorios Ordesa), have all recalled rice milk formula made at a Spanish factory which is suspected to be the source of a European wide *Salmonella* outbreak. Implicated baby formulas may have been sold in at least 18 countries via retailers and online sellers. Five *Salmonella poona* cases in France and one each in Luxembourg and Belgium are confirmed. France also has nine infections it is continuing to investigate. Seven babies were hospitalized for Salmonellosis but have since recovered. No cases have been reported in Spain.

The risk of Listeriosis infection could be linked to high fat diets

A high fat diet could increase the risk of infection with *Listeria monocytogenes*, according to researchers from University College Cork. Scientists based at the university found a high fat "western" diet reduces efficiency of the immune system to fight infectious disease in the gut. Researchers discovered that feeding mice with such a diet, which is high in fat and low in fermentable fibre, affected the immune system and the normal bacteria (or microbiome) living in the gut. Even short-term consumption of the high fat diet increased the number of goblet cells in the gut, which are the target for infection by *Listeria*, as well as causing changes to microbiome composition and the immune system.

Findings published in the journal Microbiome suggest diet should be a consideration when developing models that reflect human infectious disease and it should be a factor in future evaluation of the infectious dose of the pathogen.

Listeriosis outbreak linked to processed chocolate milk

In a paper published by the CDC this month, pasteurised chocolate milk was identified as the source of a Listeriosis outbreak in Ontario, Canada, during November 2015–June 2016. Pasteurised low water activity products are not widely associated with *Listeria*, but the report authors concluded that the outbreak highlighted that even pasteurised products can be contaminated by and support the proliferation of *L. monocytogenes* when contamination is introduced post-pasteurisation.

The possibility of post-processing contamination indicates an ongoing need for regulatory oversight and robust quality assurance processes, which include routine sampling of the environment and finished products.