



FDA release investigation report into STEC leafy green outbreaks

Over the last three years in America there has been multiple outbreaks of *Shiga Toxin E coli* (STEC) associated with the consumption of leafy green salad crops such as Romaine lettuce.

The Food and Drugs Administration (FDA) has issued a report which has indicated that the likely cause of these outbreaks which have primarily affected growers in the California Central Coast growing region is contamination from livestock grazing in adjacent areas.

It is probable that cattle which graze on farms which are upstream of the salad crop fields can contaminate the water course which in turn may be used to irrigate the crops, although the report identified other vectors which may be a factor.

The FDA recommend that all growers should be aware of, and consider adjacent land use practices, especially if it relates to the presence of livestock, and conduct appropriate risk assessments and implement risk mitigation strategies, where appropriate.

The FDA report stated that they had identified three key trends in the contamination of leafy greens by *E. coli O157:H7* in recent years: a reoccurring strain, a reoccurring region and reoccurring issues with activities on adjacent land.

Danish Salmonella outbreak linked to herbal medicine

A Salmonella outbreak in Denmark has been linked to the consumption of a brand of herbal supplements called HUSK Psyllium. The Statens Serum Institute have reported that 33 people who have consumed the herbal supplements in either capsule or powdered form have the same strain of *Salmonella typhimurium* and 19 have been hospitalised and 3 patients have died.

Dates recalled – link to Hepatitis A

In the UK the Food Standards Agency issued a product recall for imported dates because of a possible link to nearly 30 cases of Hepatitis A infections.

Epidemiological investigations have shown a link between consumption of the dates imported from Jordan and the illness although none of the implicated batches have so far tested positive.

Swedish Yersinia outbreak-update

The increase in reported cases of Yersinia infections in Sweden during January, which we reported on the February's bulletin has been linked to the consumption of iceberg lettuce.

Investigators found that all of the affected individuals had eaten at a specific restaurant chain, and they had all consumed iceberg lettuce.

Norway - Campylobacter from raw milk

Last month we discussed the dangers of contracting zoonotic infections from petting farms and this month, to compound the risk, it has emerged that in Norway 16 children and 1 adult became ill with Campylobacter and Cryptosporidium after drinking raw milk as part of their packed lunch which had been provided for them during a farm visit.

Botulinum incident in Denmark-update

The cause of the botulinum incident which affected 8 people in Denmark as discussed in last month's bulletin has been identified as red fish roe, which is described as an alternative to caviar. Interestingly botulinum toxin was only detected in the opened jar and not in 2 unopened jars which had also been purchased by the individuals, and in none of the jars that have been subsequently tested from the same batch, which has now been recalled.

This suggests that the cause may possibly be a faulty seal on the affected jar rather than a batch processing failure. In 2011 a botulinum intoxication incident which affected three young children in Scotland was attributed to a single jar of chicken korma cook-in-sauce which was found to have a faulty seal which facilitated post processing contamination of the individual jar.

Lockdown Legionella risks - HSE warning

The Health and Safety Executive (HSE) has issued a warning to landlords whose premises may have been empty during the lockdown period to consider the Legionella risks in a recent statement.

They state that if buildings have been closed or have had reduced occupancy during the coronavirus (COVID-19) pandemic, water system stagnation can occur due to lack of use, increasing the risks of Legionnaires' disease.

It advises landlords to review their risk assessments when they are restarting water systems and air conditioning units and to maintain the appropriate systems to prevent the growth of Legionella.

2018 Shigella outbreak linked to coriander

Shigella sonnei was responsible for the first infectious disease outbreak I encountered. I had just started working at the Public Health Laboratory in Leeds in the late summer and autumn of 1980 when there was a huge outbreak caused by this organism which affected many of the infant and junior schools in the Leeds area. *Shigella sonnei* typically passes from person to person, but it can have a foodborne association, usually when the foodstuff is handled by an infected person.

In a new report published in the journal *Epidemiology and Infection*, a foodborne outbreak of Shigellosis in the UK in 2018 was found to have been caused by a batch of contaminated coriander.

In March 2018, Public Health England noticed a cluster of *Shigella sonnei* infections in people who had eaten at three different catering outlets in England. The outbreaks were initially investigated as separate events but whole genome sequencing showed they were all caused by the same strain.

A total of 33 patients, linked to seven different venues specialising in Indian or Middle Eastern cuisine were identified. All of the outlets used fresh coriander, although a shared supplier was not found.

The outbreak control team postulated that the most plausible explanation for the outbreak was that the coriander was either contaminated at the point of production or during wholesale distribution. Bulk supplies of coriander entering the wholesale market are broken down into smaller batches or bunches at multiple locations. This is done by hand, providing an opportunity for contamination by an infected food handler.

In 1994 a European wide outbreak of *Shigella sonnei* was found to be caused by a contaminated batch of iceberg lettuce.

Shigella spp are not routinely tested for in most food testing laboratories, and because of this, it may be that the true incidence of foodborne *Shigella* infections is not fully appreciated or understood.

Another alternative to traditional milk pasteurisation

In the February bulletin we looked at an alternative to traditional pasteurisation which involved high pressure processing and this month another alternative technique using innovative UV technology has been described. Traditionally microorganisms in clear liquids like water have been successfully targeted by UV treatments, but problems in the penetration of the critical wavelengths in opaque liquids such as milk and fruit juices has prevented its use in these product matrices. It is claimed that this has now been overcome with the introduction of filters which are placed between the UV light source and the product which allows successful penetration of the precise UV wavelength which affects the microorganisms. The Danish company claimed that the alternative process uses 90% less energy and 60% less water than traditional thermal pasteurisation methods.

Update on the Salmonella outbreak linked to the consumption and handling of breaded poultry products.

The ongoing Salmonella outbreak linked to the handling and consumption of breaded poultry has highlighted several issues around product labelling, test method selection and cook validations.

We have reported on the Salmonella outbreak linked to the handling and consumption of frozen breaded poultry products imported from Poland for the last few bulletins. Nearly 500 people have been infected with the outbreak strain of *Salmonella enteritidis* and this has led to several product recalls of products such as nuggets, goujons, dippers, poppers and kiev.

It has now emerged that this product category can be manufactured in two different ways. In the first case, the raw chicken is coated and fully cooked during the manufacturing process (with a pasteurisation equivalent temperature of at least 70°C for 2 minutes) and is manufactured in a high-risk production environment. In the alternative production process, the raw chicken is coated and then simply flash-fried. Flash-frying sticks the coating to the meat and gives it its typical golden appearance, although the meat inside remains uncooked or raw.

It has been questioned whether the two methods of production are adequately explained on the packaging and in the cooking instructions. If there is no clear guidance for consumers they may assume that the goujons, nuggets and dippers (which are removed from the packaging and placed on a baking tray) are safe to handle. If it is not abundantly clear that the product has not been initially fully cooked, then consumers may not be prompted to wash their hands to prevent cross contamination risks. One consequence of this outbreak may be enhanced labelling of product and additional highlighting of processing information on the packaging.

This also prompts another issue which we often encounter with products which at first glance appear similar but which may undergo different levels of processing. When we advise clients regarding the most appropriate specification for their product, or how to react to out of specification results, we cannot simply go by the product category (for example "ready meals"). We need to know what thermal process has been applied to the product, and if any unprocessed post cook additions have been added. We also need to know the products intended use, for example is the product placed directly into a microwave or oven in a sealed container such as a ready meal, or is the product likely to be directly handled (as per the breaded chicken products).

This outbreak has also highlighted the need for manufacturers to undertake comprehensive cook validation studies to understand the level of thermal inactivation delivered by each manufacturing process and to clearly illustrate to the consumer on the product packaging what risks are involved, and how the product can be safely handled.