



UK - Salmonella outbreak linked to Indian restaurants/STEC outbreak/Norovirus outbreaks

Public health officials in England and Wales are investigating the source of a Salmonella outbreak that has affected more than 50 people.

Public Health England (PHE), Public Health Wales (PHW) and the Food Standards Agency (FSA) are looking into the Salmonella paratyphi B outbreak that may be linked to food served at some Indian restaurants.

It was identified by routine surveillance which found increased reports of the specific serotype of Salmonella and by analysis of data obtained through whole-genome sequencing.

While no common food product has yet been identified, several people ate at various Indian restaurants in England and Wales in the week prior to illness onset. Two Indian restaurants in London have been identified where multiple confirmed cases reported eating before becoming ill and investigations are ongoing.

PHE have announced that five people were part of a national E. coli O157 outbreak in England earlier this year.

Of five laboratory confirmed infections from Shiga toxin producing E. coli O157 phage type 2, two people developed haemolytic uremic syndrome (HUS), which required hospitalisation.

No food was identified as the source following the investigation.

Meanwhile, norovirus was responsible for six outbreaks of foodborne illness in England and Wales reported to PHE from the start of April to the end of June.

No food was identified in the largest outbreak that affected 56 people in Thames Valley. Pasta, pie or salad was the suspected vehicle in another outbreak in the Thames Valley which affected 31 people.

In two other outbreaks in the North East, Mexican burrito-style wraps were thought to be responsible for 13 illnesses and Chinese meals were believed to be the source of an outbreak which affected 19 people.

More Salmonella outbreaks in the UK/Ireland and France

A Salmonella bredeney outbreak in the United Kingdom and Ireland has been linked to imported meat from Romania and has currently affected 32 people.

In July, packages of chilled cooked meat from Romania were recalled in Ireland because of the presence of the same strain of Salmonella. To date there has been no recall of this product in the United Kingdom.

Salmonella of this serotype and genetic sequence had not previously been detected in Ireland, and the UK only detects an average of 24 cases of Salmonella bredeney annually.

Across the channel, almost 50 people are ill in France as part of a foodborne outbreak linked to eating unpasteurised, raw milk sheep's cheese. All of the 49 people affected had eaten raw sheep milk cheese and checks on the cheeses revealed the presence of the same strain of Salmonella enteritidis which had been isolated from the affected individuals.

Hospital Listeria cases - Update

The Public Health England (PHE) team investigating cases of Listeriosis linked to sandwiches and salads in NHS hospitals in England has confirmed that, since the last update, there has been another death, bringing the total number of fatalities linked to this outbreak to six.

The individual who died was one of the nine previously confirmed cases. The individual acquired Listeriosis while at Western Sussex Hospitals NHS Foundation Trust.

PHE are continuing to test all samples of listeria on an ongoing basis to check if they are linked to this outbreak. To date, thirty-four samples have been tested, with none linked to the outbreak.

There have been no new cases of Listeriosis linked to this outbreak. PHE stated that investigations are continuing and the public should be reassured that the risk continues to be low.

Novel antimicrobial processes described

Two separate research papers published this month have described separate but equally novel ways of reducing the microbial counts in different products.

In the first article, published in the Journal of Food Protection researchers claim that the use of high-intensity light pulses is one of the most promising emerging technologies for inactivating microorganisms on surfaces, in clear liquids and beverages, and on solid foods. The research was performed on Chia seeds, as it is difficult to disinfect these seeds with water and/or chemical disinfectant solutions because the mucilage in the seeds can absorb water and consequently form gels, which is why an alternative form of disinfection was being investigated.

The second article published in Science Direct looked at how a combination of Ultrasound and treatment with fumaric acid showed a synergistic bactericidal effect against pathogens such as Salmonella and Listeria in apple juice. It was stated that bacterial cell membrane damage was the main mechanism of the synergistic lethal effect.

Bacteriophage cocktail effective in combating Salmonella infections

Bacteriophages are “smart” viruses which only infect specific bacterial cells. We have looked at many applications of bacteriophages in the past, but two more potential uses have been detailed in recent scientific publications.

New research published in the Journal of Food Protection has evaluated the ability of a prophylactically administered bacteriophage cocktail targeting Escherichia coli O157:H7, Listeria monocytogenes, and Salmonella, to resolve a Salmonella infection. The researchers used a simulator of the human intestinal microbial ecosystem to show that the phage cocktail was effective both in eliminating Salmonella from the simulated human gut without disturbing the indigenous microbial flora, and also in reducing the risk of invasion by Salmonella into the intestinal epithelia. These results suggest that the preparation may be of value for reducing the risk of salmonellosis in humans, especially during foodborne disease outbreaks.

Another bacteriophage application has been described this month in the journal Science Daily. Researchers have developed a novel new gel made entirely from bacteriophages. The authors of the article state that the anti-bacterial gel, which can be targeted to attack specific forms of bacteria, holds promise for numerous beneficial applications in medicine and environmental protection. Its potential uses were described as an antibacterial coating for implants and artificial joints; as a sterile growth scaffold for human tissue, or in environmental clean-up operations,

Natural antimicrobial Olive Oil extract shown to inhibit Listeria

Regular readers of the Micro Bulletins will know that we like to promote research into natural antimicrobial products. Olive oil polyphenol extract (OOPE) has been reported to have antibacterial properties, and a new study has revealed its action against Listeria monocytogenes. The results showed that OOPE was observed to depolarise the bacterial cells and alter the cell morphology, resulting in damage to the cell membrane and leakage of cellular fluid, which resulted in the death of bacterial cells.

FSA Campylobacter survey of smaller retail outlets published

Campylobacter contamination in chickens in the UK has decreased but it remains high in smaller retailers, independent shops and butchers, according to a Food Standards Agency report. The proportion of fresh whole chickens purchased at major retail stores which were contaminated with the highest level of Campylobacter spp. has decreased from 2014, but for birds bought from smaller shops no decline has been seen.

The target is to reduce the percentage of chickens produced in U.K. slaughterhouses contaminated with more than 1,000 colony forming units (cfu) per gram, to 7 percent or less at retail.

The reporting rate for human Campylobacter infections decreased in the U.K. from 2014 to 2016. However, in England and Wales it has increased again in 2017 and 2018. It is estimated there are more than half a million cases annually in the U.K. Eating undercooked poultry or cross contamination from raw poultry meat is widely regarded as an important vehicle of infection.

Can your gut Clostridia help to control your weight?

Researchers at University of Utah have identified that the presence of Clostridia in the intestines of mice can prevent them from being obese, suggesting these same microbes may similarly control weight in people.

Published online in the journal Science, the study shows that healthy mice have high levels of Clostridia in their intestines, but those with an impaired immune system lose these microbes from their gut as they age. Even when fed a healthy diet, these mice inevitably become obese. However, the researchers found that replacing the Clostridia back to the mice allowed them to stay slim.

The study found that molecules produced by Clostridia prevented the mouse gut epithelial cells from absorbing fat. The article states that the next step is to isolate these molecules and further characterise how they work to determine whether they could be incorporated into focused treatments for obesity, type 2 diabetes, and other related metabolic disorders.