



Microbiology bulletin 22

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Blue Bell Ice Cream Listeria outbreak – the sequence of events

Just over 2 months ago, the U.S. Center for Disease Control and Prevention (CDC) reported that five people from Kansas were infected with *Listeria monocytogenes*. All five were hospitalized at the same hospital for unrelated problems before developing listeriosis; a finding that strongly suggests their infections were acquired in the hospital. Three deaths were reported among the five patients.

Of the four ill people where information is available on the foods eaten in the month before the Listeria infection, all four consumed milkshakes made with a single-serving Blue Bell brand ice cream product called “Scoops” while they were in the hospital.

On March 22nd, different varieties of institutional/food service ice cream cups which had been produced by the Blue Bell factory were recalled due to *Listeria monocytogenes* being detected following investigation by the Kansas Health Department.

On April 7th, following another isolation of *Listeria monocytogenes* from a different product (Banana pudding), all products produced at the facility were withdrawn.

On April 9th, a potential second cluster of patients was identified who had developed Listeriosis after being hospitalised. Whole gene sequencing of their strains of *Listeria monocytogenes* were found to be highly related to the sequencing of isolates from a Blue Bell product.

On April 20th, (following a further positive isolate in a Blue Bell chocolate chip cookie dough ice cream), it was announced that all of the company’s products from all of its plants were being recalled and that the company’s four facilities were being temporarily shut down until the root cause of the problem could be identified and a solution found.

The president and CEO of Blue Bell Creameries signed voluntary agreements with the Texas Department of State Health Services holding the company to a detailed Listeria testing and reporting regime before selling any ice cream made at its factories. The statement also noted that agency officials are working with state and national experts to examine frozen dessert manufacturing and identify changes that may be needed to strengthen regulations to protect public health.

As a footnote, the latest press releases concern a recent plethora of on-line advertisements from individuals attempting to sell Blue Bell ice cream to devotees who because of the total nationwide recall are unable to buy their favorite ice cream.

FSA use social media to spread the word on Campylobacter

Food Safety Week starts on May 18th and (like last year) the FSA are focusing on the Campylobacter risk associated from chicken. They are inviting supporters to sign up on twitter to the challenge of cutting Campylobacter food poisoning in half, and are re-promoting the tag line “spread the word, not the germs”.

The year-long retail survey carried out by the FSA into the incidence of *Campylobacter* in shop bought chickens is nearing its conclusion and the findings should be published shortly.

Microbiological issues associated with late season produce

It is well known that late season produce is usually more prone to microbiological contamination than produce harvested earlier in the season.

The reasons for this appear straightforward as the leaf structures (which normally provide a barrier to microbiological penetration) can become damaged throughout the season due to factors such as insects, wind and harvesting. This allows entry of spoilage or potentially pathogenic bacteria into the internal structures of the plant, with resultant spoilage or food safety issues.

However, new research has suggested that the reasons may be more complex as scientists at Harper Adams University and the University of London have shown that *Salmonella* were able to bind better to older lettuce leaves than younger ones due to the physical differences between the young and old leaves. The differences were associated with leaf vein and stomatal densities, leaf surface hydrophobicity and leaf surface soluble protein concentrations.

Almond contamination of cumin

In a twist to the contamination/adulteration scare involving almond detected in cumin (as detailed in the March bulletin), the Canadian Food Inspection Agency has said that initial results which prompted the cumin products to be re-called were wrong and the positive readings were caused by Mahaleb (a spice derived from cherry seeds).

Use of whole gene sequencing in outbreak investigations

A recent investigation into a multi country outbreak of *Salmonella enteritidis* phage type 14b used Multi locus variable-number tandem repeat analysis

(MLVA) and whole gene sequencing (WGS) to link the outbreaks to batches of egg produced in Germany and the Czech Republic.

In addition to 287 cases in England and Wales reported between May to September last year (linked to 1 hospital and 3 restaurants), human isolates from France, Austria, Germany and Luxembourg were also found to have the outbreak MLVA profile.

Following the detection of the cases, Public Health England were able to launch a nationwide investigation to identify the source of infection and put in place control measures to prevent further cases.

Transatlantic Trade and Investment Partnership

Perhaps this is an article which should appear in an economic rather than a microbiological bulletin, but there are fears that the current negotiations on this treaty between the US and Europe (aimed at removing trade barriers) may lead to an influx of artificially treated foods which are common in the US such as chlorine washed chicken, genetically modified vegetable and hormone treated beef.

Innovation fund for research into new antibiotics

The global pharmaceutical industry is being called on to pay for a \$2bn (£1.3bn) innovation fund to revitalise research into antibiotics. In return, there would be guaranteed payments to companies which produced vitally needed new antibiotics. There are currently very few new antibiotics in development amid a global spread of resistant bacteria.

The proposals are in a report by a UK government-appointed review team headed by economist Jim O'Neill. He has previously warned that drug-resistant microbes could kill 10 million people a year worldwide by 2050 and cost \$100 trillion in lost economic output.

New research at North-eastern University in Boston, Massachusetts, has discovered 25 potential new antibiotics, all of them derived from soil microbes.

One of them, teixobactin, is claimed to be effective against both tuberculosis and MRSA.