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Campylobacter still in the news

The Food Standards Agency has confirmed its plans for publishing the quarterly results from its survey of *Campylobacter* on shop-bought chicken. The FSA will name retailers, alongside *Campylobacter* levels, when it releases its next set of results in November.

Steve Wearne, Director of Policy at the FSA, said:

"Tackling *Campylobacter* is the FSA's top priority in the fight against food poisoning and we want people to have the clearest possible information on the food they buy. We have set a clear expectation for poultry producers and retailers to take action to reduce levels of *Campylobacter* in chicken. We published details about levels of *Campylobacter* found in shop-bought chickens earlier this year, but chose not to name retailers because the data was not robust enough. Since then, double the number of samples have been collected, which better reflects the situation across the country."

The 12-month survey is running from February 2014 to February 2015 and is looking at the prevalence and levels of *Campylobacter* contamination on fresh whole chilled chickens and their packaging. The results will enable the FSA to determine if changes in practice across the poultry supply chain are reflected in a reduction of contamination at retail.

The first set of quarterly data was released on 5 August 2014. In a Chief Executive's report, the FSA has confirmed its plans to publish further quarterly results in November 2014, February 2015, April 2015 and a final report of the whole survey in July 2015. All of the future quarterly publications will name the major retailers against their summary sample results.

The FSA's reluctance to draw conclusions from the first quarter results is entirely understandable. Previous short term studies have proved erroneous because the incidence of *Campylobacter* follows a seasonal variation (it was first described by Theodor Escherich in 1886 as a summer complaint), so it seems reasonable to assimilate at least 6 months data before attempting to draw any firm conclusions.

Listeria outbreak and research in Denmark

Over the last few weeks, 28 people in Denmark have been infected with *Listeria monocytogenes* from lamb roll sausages, resulting in 13 fatalities.

Coincidently, research from University of Southern Denmark has uncovered how *Listeria* can evade the host's immune system. *Listeria* produces special proteins that enable it to infect the cells in our body. However, it must ensure that the body's immune system does not detect these proteins. It is vital for *Listeria* to keep a balance between producing enough of these antigenic proteins but not so many that they are detected by the immune system – the mechanisms involved were explained in the research headed by Associate Professor Birgitte Kallipolitis.

The researchers found that *Listeria* started producing RNA molecules when they were exposed to antibiotics, bile, salt, acid and ethanol. These RNA

molecules regulate the production of various specific proteins. For example it can downgrade the production of the protein LapB, which it uses to enter our cells. If this production is not downgraded, the bacterium will potentially be detected and fought by the immune system.

In other words*: Listeria* can fine-tune the production of the proteins needed to infect our cells to a point where there is exactly enough to sneak through the immune system's defence, but not so many that they are discovered.

The RNA molecules, produced when *Listeria* face dangerous environmental changes, also help *Listeria* monitor its own cell wall. Antibiotics work by attacking the bacterial cell wall, and when exposed to antibiotics *Listeria* detects that its cell wall is attacked, and can immediately instigate repair mechanisms.

"We see this production of RNA molecules only when *Listeria* is exposed to threatening substances in the lab. When there are no threats, *Listeria* does not produce them. This reveals part of the mechanism behind *Listeria´*s extreme adaptability" The understanding of how *Listeria* is able to survive antibiotics, the immune system and disinfecting agents is necessary in order to develop effective treatments against the life-threatening bacteria. "Only by looking at what the bacteria themselves do to survive, we can become better at fighting their pathogenicity", said Birgitte Kallipolitis.

She and her colleagues are now investigating whether *Listeria* can be changed into harmless bacteria by removing the RNA molecules

USA - Foster Farms *Salmonella* outbreak officially over

Seventeen months since the first illnesses appeared in March 2013, the Foster Farms-linked *Salmonella* outbreak has been declared over by the U.S. Center for Disease Control and Prevention.

The final tally of confirmed illnesses came in at 634 people in 29 states. Of those cases, at least 241 people (38 percent) were hospitalized.

Illnesses connected to the California-based poultry producer hit its home state the hardest, with 490 cases counted in California alone.

Outbreak of *Vibrio vulnificus* in Florida

A total of 16 cases of *Vibrio vulnificus* infections have been reported in Florida, which has resulted in 3 fatalities from the organism.

People can get infected with *Vibrio vulnificus* when they eat raw shellfish, particularly oysters. The bacterium is frequently isolated from oysters and other shellfish in warm coastal waters during the summer months.

Since it is naturally found in warm marine waters, people with open wounds can be exposed to *Vibrio vulnificus* through direct contact with seawater.

European *Salmonella enteritidis* outbreak may have a common source in Eggs

Cases of *Salmonella enteritidis* reported by Austria, France, Germany and the United Kingdom, in addition to one case reported in Luxembourg in a patient residing in France, appear to be linked by time of symptom onset and microbiological characteristics of isolates. Cases in Austria, France and Germany share an epidemiological link to the same egg packaging centre in southern Germany.

It is noticeable that *Salmonella enteritidis* contaminated eggs have been able to reach the market, in spite of the strict regulations applying to table eggs for human consumption, and the success in reducing human and animal infections in recent years within the EU.

Human infections of *Salmonella enteritidis* in England and Wales have decreased significantly over the last 10 years (from over 10,000 in 2001 to 2,000 in 2012), which has been attributed in some part to the vaccination of egg laying poultry against *Salmonella enteritidis* phage type 12.