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1st set of results published by FSA on Retail Campylobacter Survey – Year 3

The FSA have published results from the 1st quarter of their third year survey of Campylobacter on fresh shop-bought whole chickens.

The results show a decrease in the number of birds with the highest level of contamination (greater than 1,00cfu/g) compared to the same months in 2015 and 2014. The new data shows that 7% of chickens tested positive for the highest level of contamination, down from 12% for the same period in 2015 and 20% in 2014. The FSA state that research has shown that reducing the proportion of birds in this category will have the biggest positive impact on public health.

The report states that progress has been made by the larger processing plants (which supply the major retailers), towards reaching the target which was agreed with industry to reduce levels of the most heavily contaminated birds at slaughter to not more than 10%. However, overall the industry has not yet met this target. This is partly because the smaller independent plants (which tend to supply smaller retailers) have yet to make similar improvements.

The percentage of chickens that tested positive for the presence of campylobacter at any level is 56%, down from 66% in 2015 and 78% in 2014. This includes samples with very low levels of campylobacter, which the FSA state would be unlikely to cause illness.

In the same report, the FSA also revealed that new figures from UK surveillance bodies show a 17% decline in the number of laboratory reports of human cases of Campylobacter in 2016.

Heather Hancock, Chairman of the Food Standards Agency, said: “The challenge we set of reducing the number of people who get ill from Campylobacter has been achieved. In the absence of any other clear indicators, we can reasonably say that the work that we and the food industry have done from farm to fork has given us this really positive result for public health”.

It can be difficult to evaluate where the UK stands globally as no other European countries have conducted such a comprehensive survey. An article published in Poultry Med on the incidence of Campylobacter in Italian poultry meat, sampled 472 chicken and turkey meat samples from slaughterhouses, deboning plants and different retailers and the report states that Campylobacter spp. was detected in 34.1% of the samples.

How Campylobacter is transferred from poultry to food contact surfaces is the topic of a recently published article in the Journal of Food Protection. Researchers in Malaysia and Australia examined the transfer of two strains each of Campylobacter jejuni and Campylobacter coli, as well as Salmonella enteritidis, and Salmonella typhimurium from chicken meat to a knife or scissors used on either a plastic or wooden cutting board.

The researchers found that the attachment of the Salmonella strains to chicken meat was higher than the attachment of the Campylobacter strains. All four Salmonella strains transferred in higher numbers to all surfaces than did the Campylobacter strains.

The work did reassuringly reveal that most cleaning treatments reduced the numbers of both pathogens.

So if Campylobacter is not as well adapted at attachment to the poultry carcass as Salmonella, then why is Campylobacter more commonly associated with poultry than Salmonella? The answer seems to lie in the fact that

Campylobacter is a much more predominant organism within the poultry intestine than Salmonella. Clues as to why this happens have been given in new research recently published by the University of Liverpool which claims that the immune response of farmed chickens does not develop fast enough to fight off Campylobacter during their short lifespan.

The researchers claim to have shown that antibody production plays a role, albeit limited, in the clearance of intestinal infection. However, it fails to clear the bacterium within the lifetime of a commercial broiler chicken, which is typically around six weeks of age.

Professor Paul Wigley, from the University's Institute of Infection and Global Health, stated that the findings suggest that any Campylobacter vaccine relying solely on an antibody response is unlikely to be effective in broiler chickens

Approximately four in five cases of Campylobacter infection in the UK result from contaminated poultry – either through consumption of undercooked meat or through cross contamination in the kitchen. There are still more than 280,000 cases in the UK and the cost to the economy is estimated at up to £900 million each year.

Does Immuno-magnetic separation work for the non 0157 STEC's?

Whereas the method currently employed to detect the seven STEC serotypes is most commonly by PCR techniques, for many years detection of the most common serotype, E coli 0157 has been performed by immuno-magnetic separation (IMS) techniques.

Research published in the Journal of Food Protection investigated whether the traditional method was comparable in detecting the non 0157 STEC strains.

The research found that the IMS technique was not as effective as PCR when recovering strains of 0111, 0121 and 0145 when these were placed in mixed cultures.

They concluded that refinements to IMS assays, development of selective media, and determination of optimal enrichment times to reduce background microflora or competition among serogroups would be especially beneficial for recovery of the STEC serotypes mentioned above.

Errington cheese saga rumbles on....and on...and on.

The Incident Management Team involved in investigating last year's E coli 0157 outbreak has issued its report. It concludes that Dunsyre Blue cheese was the source of the E. coli O157 outbreak in the summer of 2016 which led to 17 people being hospitalised including one fatality.

The outbreak led to further investigations of cheese produced by Errington Cheese Ltd and of the production processes in place at the time. The report concludes that:

“Potentially pathogenic E. coli were able to enter and survive the cheese production process at the food business. Positive results were obtained for cheese produced over a period of four months, indicating a systematic potential for STEC to enter the process and contaminate final products.

Extensive investigations concluded that the source of the outbreak was the consumption of Dunsyre Blue. This conclusion was based on evidence from epidemiological and food chain investigations and supported by microbiological evidence and deficiencies identified in the procedures for the monitoring and control of STEC at the food business”.

South Lanarkshire Council has confirmed to Food Standards Scotland that Errington Cheese Ltd now has the relevant controls in place to allow cheese production to start again under a revised food safety management system. The new season Lanark Blue cheese which has been placed on the market has been produced under this revised food safety management system.

A new natural anti-microbial agent

A new addition to the many natural antimicrobial substances has recently been found. Research published in the latest edition of Food Microbiology claims that chitosan, a naturally occurring carbohydrate derived from crustaceans blocked the growth of Clostridium perfringens in cooked chicken. They also found chitosan inhibits spore germination and outgrowth by blocking the spore core from releasing dipicolinic acid, which is associated with an early step of spore germination and also inhibits the growth of vegetative cells.

The researchers suggested that chitosan may be more effective when combined with other food preservatives such as sorbate and benzoate.