A microbiological survey of campylobacter contamination in fresh whole UK-produced chilled chickens at retail sale (Y5)

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Background

Campylobacter spp. are the most common bacterial cause of foodborne illness in the UK, with chicken considered to be the most important vehicle for this organism. The FSA agreed with industry to reduce campylobacter spp. contamination in raw chicken and issued a target to reduce the prevalence of the most contaminated chickens (those with more than 1000 cfu per g chicken neck skin) to below 10% at the end of the slaughter process, initially by 2016.

To help monitor progress, a series of UK-wide surveys were undertaken to determine the levels of campylobacter spp. on whole UK-produced, fresh chicken at retail sale in the UK. The data obtained for the first four years was reported in FSA projects FS241044 (2014/15) and FS102121 (2015 to 2018). This new survey represents year 5 of sampling, carried out from August 2018 to July 2019.

Research approach

A UK-wide survey was undertaken to determine the levels of campylobacter spp. on whole fresh retail chickens from non-major retailer stores in a fifth survey year from 2018 to 2019. In line with previous practise, samples were collected from stores distributed throughout the UK (in proportion to the population size of each country). Testing was performed by two laboratories - a Public Health England (PHE) laboratory or the Agri-Food & Biosciences Institute (AFBI), Belfast.

Enumeration of campylobacter spp. was performed using the ISO 10272-2 standard enumeration method applied with a detection limit of 10 colony forming units (cfu) per gram (g) of neck skin. Antimicrobial resistance (AMR) to selected antimicrobials in accordance with those advised in the EU harmonised monitoring protocol was predicted from genome sequence data in campylobacter jejuni and campylobacter coli isolates.

Results

The percentage (10.8%) of fresh, whole chicken at retail sale in stores of smaller chains, independents and butchers in the UK that are highly contaminated (at more than 1000 cfu per g) with campylobacter spp. has decreased since the previous survey year but is still higher than that found in samples from major retailers.

A total of 1009 whole fresh raw chickens from non-major retailer stores were collected from August 2018 to July 2019. Campylobacter spp. were detected in 55.8% of the chicken skin samples obtained from non-major retailer shops, and 10.8% of the samples had counts above 1000 cfu per g chicken skin. Comparison among production plant approval codes showed significant differences of the percentages of chicken samples with more than 1000 cfu per g, ranging from 0% to 28.1%.

The percentage of samples with more than 1000 cfu of campylobacter spp. per g was significantly higher in the period May, June, and July than in the period November to April. The percentage of highly contaminated samples was significantly higher for samples taken from larger compared to smaller chickens. There was no statistical difference in the percentage of highly contaminated samples between those obtained from chicken reared with access to range (for example, free-range and organic birds) and those reared under standard regime (for example, no access to range) but the small sample size for organic and to a lesser extent free-range chickens, may have limited the ability to detect important differences should they exist.

Overall, the percentages of isolates with genetic AMR determinants found in this study were similar to those reported in the previous survey year (August 2016 to July 2017) where testing was based on phenotypic break-point testing. Multi-drug resistance was similar to that found in the previous survey years. It is recommended that trends in AMR in campylobacter spp. isolates from retail chickens continue to be monitored to realise any increasing resistance of concern, particularly to erythromycin (macrolide).

Research report

Year 5

PDF
View A microbiological survey of campylobacter contamination in fresh whole UK-produced chilled chickens at retail sale (Y5) as PDF(Open in a new window) (520.75 KB)
EXCEL
View Campylobacter Year 5 retail survey raw data as Excel(Open in a new window) (233.67 KB)

Previous research reports

Year 4

PDF
View Campylobacter contamination in fresh whole UK-produced chilled chickens at retail sale (Year 4 2017-2018) as PDF(Open in a new window) (682.49 KB)
EXCEL
View Campylobacter year 4 retail survey raw data as Excel(Open in a new window) (233.03 KB)
PDF
View Retail survey protocol - Year 4 as PDF(Open in a new window) (467.39 KB)

Year 3

PDF

View Campylobacter contamination in fresh whole UK-produced chilled chickens at retail sale (Year 3 2016-2017) as PDF(Open in a new window) (819.39 KB)
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England, Northern Ireland and Wales

PDF
View Retail survey protocol - Year 3 as PDF(Open in a new window) (384.39 KB)

Year 2

England, Northern Ireland and Wales

PDF
View Report on survey of campylobacter contamination in fresh whole UK-produced chilled chickens at retail: July - September 2015 as PDF(Open in a new window) (446.79 KB)

England, Northern Ireland and Wales

PDF
View Research report: Campylobacter contamination in fresh whole UK-produced chilled chickens at retail: October – December 2015 as PDF(Open in a new window) (493.02 KB)

England, Northern Ireland and Wales

PDF
View Research report: Campylobacter contamination in fresh whole chilled UK-produced chickens at retail: January – March 2016 as PDF(Open in a new window) (208.98 KB)

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PDF
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