

Scientific Interpretive Summary

Foodborne campylobacteriosis in humans in the Manawatu: Investigation of fresh poultry meat sources other than broilers

Source attribution is the process of determining the proportions that various pathways and sources contribute to the total incidence of a specific disease in humans. This information is critical in creating targeted intervention strategies to reduce the human disease burden, and for monitoring progress in achievement of public health goals.

Recent NZFSA-funded studies in the Manawatu, supported by validation studies in Auckland and Christchurch, (http://www.nzfsa.govt.nz/science/research-projects/Campy_Attribution_Manawatu.pdf), showed a strong relationship between *Campylobacter jejuni* populations isolated from fresh broiler chickens and those isolated from human clinical cases. These analyses demonstrated that broiler chickens were the primary source responsible for human campylobacteriosis in New Zealand.

Approximately 95% of poultry consumption in New Zealand is broiler chicken meat, with turkey, duck, and roasting fowl making up the remaining 5%. Although consumption of these alternative poultry sources is relatively low, evidence from other countries suggests that fresh duck and turkey carcasses may be highly likely to be contaminated with *Campylobacter* and may represent a source of human infection that is disproportionately high relative to their market share.

To develop a more comprehensive picture of the contribution of *Campylobacter* from fresh retail poultry to human disease in New Zealand, a survey of contamination of *Campylobacter* in end-of-lay meat breeders (also known as "spent hens"), ducks and turkeys was conducted. This study examined the probability of carcasses being contaminated with *Campylobacter*, and also the level of contamination and genotypes of *C. jejuni* present. Using modelling approaches, data from these sources was included in an analysis of the contribution of multiple food and environmental sources to estimate how many cases may be attributable to poultry sources, including non-broiler meat.

Campylobacter spp. were present on most duck and turkey carcasses examined, in similar numbers to those found previously on broiler chickens. However, the genotypes of *C. jejuni* isolated from these sources were not those found commonly in humans. Source attribution models indicate a very low contribution to human infection from these sources, individually and combined. This may be due to these genotypes displaying lower pathogenicity or, given the relatively low consumption of these poultry sources, that the low human case attribution merely reflects lower exposure.

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