

Scientific Interpretive Summary: Monitoring of poultry for *Campylobacter* using the National Microbiological Database: Identification of carcasses with low levels of contamination

Since April 2007, a testing programme has been in place at New Zealand's poultry primary processing plants to determine the *Campylobacter* spp. status of carcasses at the end of processing. This testing includes rinsing of carcasses taken after the immersion chiller, plating of a rinse subsample, and counting of *Campylobacter* colonies, if present. In these tests, the technical procedure requires the use of 400 ml of diluent, of which 2 ml is spread onto 6 plates of CBA or mCCDA agar. Effectively, the absence of colonies indicates no colony forming units (cfu) in the 2 ml subsample, i.e. a detection limit of 200 cfu in the entire rinsate. Results are collated by the National Microbiological Database (NMD).

The NZFSA Science Group commissioned a science project to determine whether a proportion of "not detected" (ND) results in the NMD database represents positive but low count (<200 cfu) carcasses. Twenty three ND rinsates were obtained from two processing plants. A 100 ml subsample of each ND rinsate was enriched and plated to confirm the presence or absence of *Campylobacter* (detection limit approximately 3 cfu).

Twenty-two ND samples were derived from flocks that had negative caecal samples i.e. samples taken from birds immediately after slaughter. Seven of these subsamples were positive on enrichment and the remainder were negative. These positive results may have been the result of cross-contamination during dressing. Alternatively the flock may have been infected with *Campylobacter* but the caecal testing procedure may not have been sufficiently sensitive to detect the infection. One ND sample of the 23 samples was from a flock that had a pooled caecal sample positive for *Campylobacter*. This enriched subsample was *Campylobacter* positive.

While the number of samples evaluated was small, a significant proportion of ND samples were positive after enrichment, i.e. they contained a small number of *Campylobacter* organisms. *Campylobacter* risk assessments indicate that the risk of infection and illness increases with the dose of pathogens ingested and therefore the risk posed by ND carcasses that are in fact contaminated with low levels of pathogens will be relatively low compared with risk generated from birds that carry a higher bacterial load. However, if a large number of birds carry a small load of *Campylobacter*, then they might as a group generate a significant exposure. Currently available risk models are not sensitive enough to be able to quantify such risks.

This study demonstrates that the NMD provides valuable ongoing monitoring data on the levels of contamination of *Campylobacter* on broiler meat (prevalence and concentration).

Evaluation of this data should take into account the fact that the prevalence of positive (>200 cfu) NMD rinsate samples per premises is lower than the true prevalence of positive carcasses. However, the false negative carcasses are those with very low levels of contamination and they are unlikely to contribute significantly to the burden of illness.

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