International Poultry Production's
Poultryhealth BYTES
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026 – Campylobacter I

Introduction

Many species of poultry are often infected with campylobacter, especially Campylobacter jejuni and C. coli, which as enteric bacteria are well adapted to the host and its intestinal tract. Although extensive colonisation of the bird's digestive tract occurs this is not often associated with overt or clinical disease. However, campylobacter is very important as a zoonotic pathogen with C. jejuni being associated with most cases of human campylobacteriosis and currently the finger is pointed at poultry as a major source of this cause of human food poisoning.

Aetiology

Currently there are 16 species in the genus Campylobacter. Three of the campylobacter (C. jejuni, C. coli and C. lari) are known as thermophilic campylobacter and these three cause the vast majority of the cases of human campylobacteriosis. The campylobacter organism is Gram negative, non-spore forming and possesses a single flagellum or whip like propelling appendage that induces a corkscrew like or darting motility. Under the microscope campylobacter is a 'S' shaped organism although it can convert into coccoid or spherical forms.

Epidemiology

C. jejuni and C. coli are widely distributed among avian species and especially among wild birds. An intriguing series of outbreaks of human food poisoning occurred in the UK as a result of wild birds pecking the top of milk bottles and drinking and thereby contaminating the milk with campylobacter. In poultry production it is considered that large numbers of birds in a confined space facilitates the rapid spread of campylobacter within a flock.

Various surveys have shown varying flock prevalences and campylobacter appears to be more prevalent in the warm summer months.

Within a broiler flock the prevalence of campylobacter increases with age and is at its highest at slaughter. The prevalence is often higher in free range flocks. In most situations the majority of isolates from poultry are C. jejuni.

Horizontal transmission from house to house on a farm is important but other sources of infection include old litter, contaminated drinking water, other animals (farm, wild and pets), people and farm vehicles.

Campylobacter is not usually found in fresh feed or fresh litter. Insects may act as mechanical vectors and the same strains of campylobacter in a broiler flock have been found in insects caught in the house. Flies are a possible vector of campylobacter.

Four legged vermin have been implicated as introducers of campylobacter into a poultry house and hence the flock it houses.

Wild birds are often infected with non-poultry strains of C. jejuni.

Farm staff can carry campylobacter into poultry houses on their boots and clothing and there are merits in keeping dedicated clothing in each house for use in that house only.

Vertical transmission probably does not occur because young birds are usually free of campylobacter and when the organism does become established it is often of a different strain(s) to those in the breeder flock(s) of origin. However, there is some evidence, such as campylobacter DNA in embryos and newly hatched chicks, to suggest that vertical transmission may occur.

Incubation period

This is typically two to five days although infection rarely causes disease. The infectious dose is very low – just a few micro-organisms.

On poultry farms campylobacter is rarely seen in birds younger than two to three weeks of age.
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