

SURVEILLANCE STUDIES

SEROPREVALENCE OF *TOXOPLASMA* AND *NEOSPORA* IN CATTLE AND SWINE (Y. R. Ortega, G. Saavedra, and P. Torres)

Toxoplasma and *Neospora* are apicomplexans that can infect a variety of animals, some of which are used for human consumption. *Toxoplasma* also infects humans and can cause encephalitis. In pregnant women, fetal toxoplasmosis can result in abortions or produce birth defects, blindness, encephalitis, and chorioretinitis. Infection can be acquired by ingestion of *Toxoplasma* oocysts which are excreted in the feces of infected felines, ingestion of raw meats containing viable tissue cysts, or by organ transfusions. *Neospora* causes abortion in cattle.

Sera from 290 pigs and 329 cattle from U.S. and Peru were collected from slaughterhouses. Parasite-specific antibody responses to *Neospora caninum* and *Toxoplasma gondii* antigens were detected using the immunoblot assay.

Of the serum samples from Peru, 38/137 (28%) of the porcine and 127/253 (50%) of the bovine sera were positive for *T. gondii*, and 3 (2%) of pigs and 20 (8%) of cows were positive for *N. caninum*. In the U.S., 33/76 (43%) of cows and 23/153 (15%) of pigs were positive for *T. gondii* and 10 (13%) of cows and 1 (0.6%) of pigs were positive for *N. caninum*.

Antibodies to both *N. caninum* and *T. gondii* were found in 12 (5%) of 253 cows and 3 (2%) of 137 pigs from Peru. In the US, 5/76 (7%) of cows and 0/153 (0%) in swine sera were positive for both parasites.

ISOLATION OF *LISTERIA MONOCYTOGENES* FROM LATINA-STYLE SOFT CHEESE (C.-M. Lin, L. Zhang, B. Swaminathan, and M. P. Doyle)

Continuous outbreaks of listeriosis occurred for several months in 2003 in Hispanic communities in Texas. The Texas Department of Health determined that most cases of listeriosis were associated with Latina-style soft cheese such as queso fresco. The contaminated cheese was either imported from Mexico or home-made. The Texas Department of Health collected and shipped two sets of cheese samples (total of 34 samples) to the UGA Center for Food Safety in July and August. The cultural methods described in the FDA Bacteriological Analytical Manual (BAM, 9th ed. 2001) and a PCR-based assay (BAX[®] system, DuPont) were used simultaneously to detect *L. monocytogenes* in the cheese samples, and a three-tube MPN procedure was used to enumerate *L. monocytogenes* in the positive samples. Four samples were confirmed *L. monocytogenes*-positive. Isolates of *L. monocytogenes* from the positive samples were sent to the CDC for serotyping and PFGE analysis. One isolate had the same PFGE profile as patient isolates collected in Texas and Georgia and another isolate had the same pattern as an isolate from a patient associated with an outbreak in Los Angeles County, California. Distribution of *L. monocytogenes* in the cheese samples was not homogenous. All samples were analyzed twice. When a sample was confirmed as positive by one of the two analyses, the sample was analyzed again. Of the four positive samples, two were positive by both analyses, one was positive in only one of three analyses, and one was positive with the second and third analyses. *L. monocytogenes* counts ranged from < 0.3 to 149 MPN/g in the positive cheese samples.

CAMPYLOBACTER SPP. ENUMERATION IN BROILER FECES AND PROCESSED CARCASSES (N. J. Stern and M. C. Robach)

Enumeration of *Campylobacter* spp. on Campy-Cefex agar from 50 carcasses, before and after chilling, was conducted in both 1995 and 2001. One day prior to processing, feces were also collected from each of the broilers for enumeration. A significant reduction in the levels of the organism on freshly processed broiler carcasses was observed from 1995 ($10^{4.11}$ cfu/carcass) to 2001 ($10^{3.05}$ cfu/carcass). Levels of *Campylobacter* spp. found in production and processing were not strongly correlative and suggested the existence of complex parameters involving production factors and variables associated with flock transport and the processing of the broilers.

**RELATIONSHIP OF *CAMPYLOBACTER* SPP. IN ICELANDIC POULTRY OPERATIONS
AND INCIDENCE OF HUMAN CAMPYLOBACTERIOSIS**

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G. M. Paoli, and M. T. Musgrove)**

Domestic cases of human campylobacteriosis in Iceland during 1999 reached peak levels of 116 cases per 100,000 population. Over the same period, 62% of broiler carcass rinses were contaminated with *Campylobacter* spp. The incidence of campylobacteriosis in humans decreased to 33 cases per 100,000 population in 2000, and only 15% of the broiler flocks tested *Campylobacter* spp. positive. Several factors account for the large reduction in poultry-borne campylobacteriosis and include public education, enhanced on-farm biological security measures, and carcass freezing. Additional information is being sought to understand the decline in campylobacteriosis such that a risk model for *Campylobacter* spp. transmission may be generated for this well-defined system.

**GENOTYPE ANALYSES OF *CAMPYLOBACTER* ISOLATED FROM THE GASTROINTESTINAL TRACTS
AND THE REPRODUCTIVE TRACTS OF BROILER BREEDER ROOSTERS**

(K. L. Hiett, G. R. Siragusa, N. A. Cos, R. J. Buhr, M. T. Musgrove, N. J. Stern, and J. L. Wilson)

The pathways involved in *Campylobacter* contamination of poultry flocks, horizontal transmission and/or vertical transmission, remain unclear. In this study, *Campylobacter* isolated from feces, cloacal swabs, ceca, semen, and vas deferens of 12 breeder roosters were genotyped by both flagellin A short variable region (*flaA* SVR) DNA sequence analysis and repetitive element (rep)-polymerase chain reaction (PCR). *Campylobacter* was isolated from multiple sites in 9 of 12 roosters. *Campylobacter* isolated from five of the nine roosters demonstrated closely related M SVR DNA sequences as well as rep-PCR patterns. These isolates were collected from both the gastrointestinal and the reproductive tracts or from the gastrointestinal tract alone. Isolates from two of the remaining four roosters originated from both the gastrointestinal tract and the reproductive tracts and were distinct by both typing methods. Distinct isolates from the remaining two roosters originated from only the reproductive tract. No relationships between the genotypes and the sample type could be determined. Additional studies will need to be conducted to determine if the presence of *Campylobacter* within the rooster leads to contamination of the broiler offspring via the fertilized egg.

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