

SURVEILLANCE BULLETIN

Canadian Integrated Program for Antimicrobial Resistance Surveillance (CIPARS)

Emergence of Ciprofloxacin-Resistant *Campylobacter* in Retail Chicken in British Columbia and Saskatchewan

CIPARS has identified an emerging trend (> 10% prevalence) in ciprofloxacin-resistant *Campylobacter* isolated from retail chicken in the provinces of British Columbia and Saskatchewan (Figure 1). This is in contrast to Canadian studies and CIPARS data from previous years and other provinces where the prevalence was less than 4% (1).

Retail Chicken Surveillance

- Beef, chicken and pork are sampled from grocery stores and markets in British Columbia, Saskatchewan, Ontario, Québec and the Maritime provinces, every 1-2 weeks (2).

Campylobacter

- The most common foodborne pathogen that causes gastroenteritis in Canadians (3);
- A Notifiable Disease (human) in Canada;
- Infection may cause: diarrhea, fever and abdominal pain; Guillain-Barré syndrome;
- Frequently associated with poor kitchen hygiene and/or under-cooking of poultry products.

Ciprofloxacin

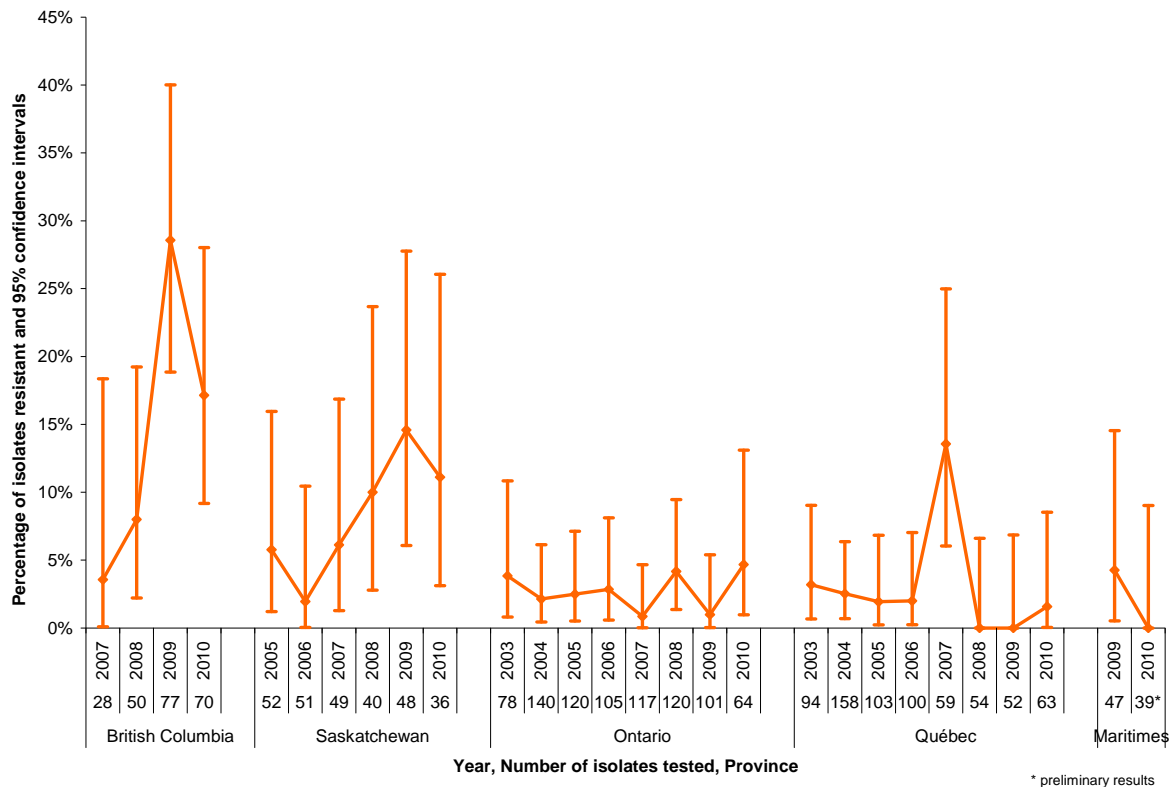
- A fluoroquinolone antimicrobial, which is considered very important to human medicine (4, 5) in the treatment of respiratory, urinary, gastrointestinal, skin and bone/joint infections;
- Use of veterinary fluoroquinolones can select for ciprofloxacin-resistant *Campylobacter*;
- The veterinary fluoroquinolones **enrofloxacin** (Baytril® 100, Bayer) and **danofloxacin** (A180®, Pfizer) are prescription drugs available as injectable solutions for treating bovine respiratory disease.
 - These antimicrobials are not labelled for use in poultry in Canada;
- Health Canada requires that veterinary fluoroquinolone product labels include the following warnings:
 - *Do not use in an extra-label manner in cattle or in any other species;*
 - *To limit the potential development of antimicrobial resistance: Fluoroquinolone drugs such as Baytril 100/A180, should not be used indiscriminately.*

Public Health Concern

- Fluoroquinolone-resistant *Campylobacter* from chicken have been linked to fluoroquinolone-resistant *Campylobacter* infections in people (6, 7);
 - CIPARS is investigating the prevalence and molecular characteristics of fluoroquinolone-resistant *Campylobacter* among human clinical isolates from British Columbia and Saskatchewan;
- People with fluoroquinolone-resistant *Campylobacter* may have more severe illness than people with susceptible *Campylobacter* (6);
- Unlike drug residues, antimicrobial resistance persists in bacterial contaminants beyond the meat (and egg) withdrawal periods indicated by product labels or Canadian gFARAD;
- Once established in a population, fluoroquinolone resistance in *Campylobacter* can persist and become stable, even following fluoroquinolone withdrawal (3);
- Regional increases in the prevalence of fluoroquinolone resistance identified by CIPARS are suggestive of fluoroquinolone use in the broiler or broiler breeder sectors;
- Antimicrobial use data from these production sectors is currently not available;
- Expert opinion suggests that the trend noted in ciprofloxacin-resistant *Campylobacter* from chicken is associated with the extra-label use of enrofloxacin in broiler breeder flocks to treat *Salmonella*.

Given these public health concerns, fluoroquinolones should not be used in an extra-label manner in food-producing animals. Prescription antimicrobials should only be dispensed within the confines of a valid veterinary-client-patient-relationship.

Figure 1. Temporal variation in resistance to ciprofloxacin in *Campylobacter* isolates from chicken; CIPARS Retail Meat Surveillance, 2003–2010.



References

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