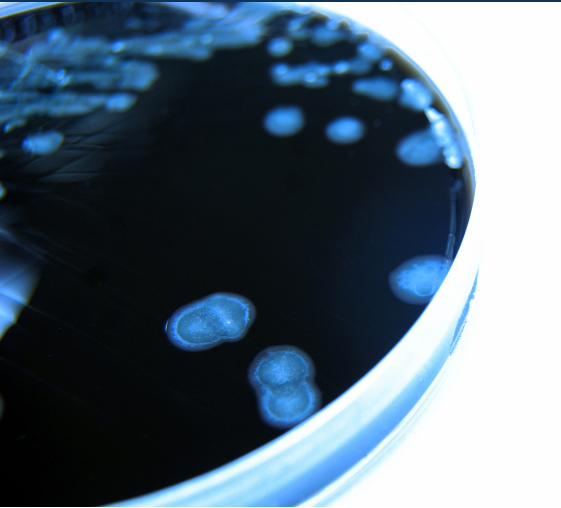


CAMPYLOBACTER ANTIMICROBIAL RESISTANCE (AMR) INFORMATION



What are Campylobacter?

- *Campylobacter* are bacteria that can be found in the manure of animals and people.
- *Campylobacter* bacteria were isolated in 44% to 64% of manure samples from Canadian feedlot cattle from 2019 to 2021.
- There are more than 20 species of *Campylobacter* and not all cause disease in cattle or humans.
- The species most likely to cause gastrointestinal disease in humans is *C. jejuni*, and less frequently *C. coli*, which is the species most commonly found in the manure of feedlot cattle (>70% of isolates).

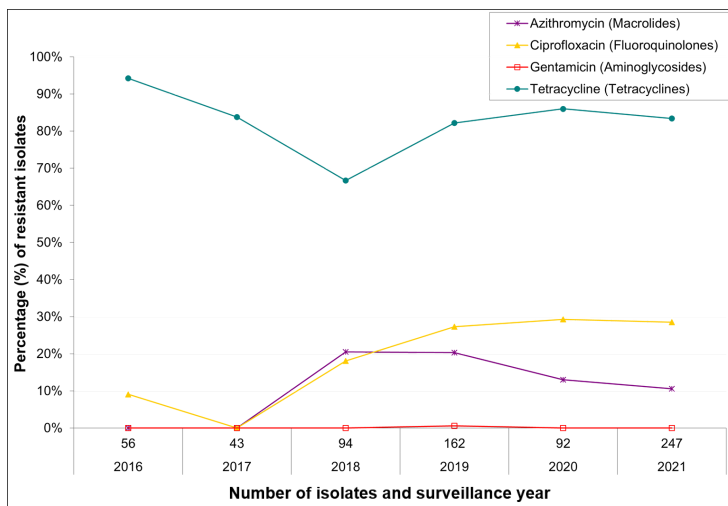


Figure: *Campylobacter* species* isolates in the manure of Canadian feedlot cattle from 2016 to 2021

Percentage of resistant *Campylobacter* isolates by number of isolates and surveillance year, from 2016 to 2021.

**Campylobacter* species are aggregated from multiple species.

THERE ARE MANY DIFFERENT SPECIES OF CAMPYLOBACTER. NOT ALL CAUSE DISEASE IN CATTLE OR HUMANS.

- *Campylobacter* bacteria are found in the feces of various animals, including poultry, cattle, swine, and pets. They are spread through the consumption of contaminated, raw, or undercooked meat, seafood, eggs, unpasteurized milk, and untreated water, as well as by poor hygienic practices i.e., not washing hands properly with soap and water (Source: CDC <https://www.cdc.gov/campylobacter/technical.html>).
- ***C. jejuni* and *C. coli* bacteria rarely cause disease in cattle.** *C. jejuni* has been associated occasionally with calf diarrhea and abortion outbreaks.
- ***C. fetus subspecies fetus* is a particular strain of *Campylobacter* that causes vibriosis in cattle.** This bacterium is found in the prepuce of bulls (not manure) and it spreads venerally from infected bulls to susceptible females, causing infertility and occasionally abortions.



WHY IS MEASURING AMR IN *CAMPYLOBACTER* BACTERIA IN THE MANURE FROM FEEDLOT CATTLE IMPORTANT?

- *Campylobacter* bacteria in cattle manure can be transmitted to other cattle and humans through various pathways, including the environment (water, soil, air), contaminated beef, and by direct contact between cattle and humans. See figure from the "**Bovine enteric pathogen summary**".
- ***Campylobacter* bacteria are fragile**; they do not survive drying, and freezing reduces the numbers on raw beef.
- **Azithromycin** (macrolide) and **fluoroquinolones** e.g., ciprofloxacin, are commonly used to treat campylobacteriosis in humans; therefore, resistance to these antimicrobials is of concern.
- *Campylobacter* bacteria can **potentially transmit their AMR genes** to other bacteria that cause disease in cattle or humans, making it harder to treat other diseases.



WHAT CAN YOU DO AS A PRODUCER TO REDUCE ANIMAL AND HUMAN HEALTH RISKS FROM *CAMPYLOBACTER*?



TALK TO YOUR VETERINARIAN!

Work with your veterinarian to reduce the risk of infectious disease; thus, the need for antimicrobials and risk of AMR development, by using good animal husbandry and on farm practices, such as: effective vaccination protocols, well-balanced rations, environmental management, health and performance monitoring, and staff training.



Practice good manure management practices as per provincial and federal regulations to prevent manure contamination of surface water bodies and leaching to groundwater.



Contain manure runoff from feedlot pens, stockpiled manure, and compost piles.



Do not apply catch basin liquid to crops grown for human consumption that are eaten uncooked.

WHAT CAN YOU DO AS A PRODUCER TO REDUCE ANIMAL AND HUMAN HEALTH RISKS FROM *CAMPYLOBACTER*?



Follow provincial setback distances when applying catch basin water to land and when applying manure on land and incorporate in soil within 48 hours to reduce runoff.



Scrape, bed, and clean feedlot pens regularly to reduce tag build-up on cattle hides.



Monitor groundwater bacterial contamination with regular water testing.



Contain and divert runoff from deadstock to prevent contamination of feeding pens, feed, and water bodies, and leaching to ground water.



Implement a dust control strategy.

- Scrape pens of loose dust and remove regularly.
- Water feed alleys and feeding pens as needed to reduce dust.
- Consider use of tree shelterbelts around feedlot to collect/contain feedlot dust.



Educate feedlot workers on good hygienic practices e.g., wash hands well with soap and water before eating, drinking, or smoking.

*The Canadian beef industry and multiple other stakeholders are working with the **Canadian Integrated Program for Antimicrobial Resistance Surveillance (CIPARS)** to implement and maintain a national feedlot antimicrobial use (AMU) and resistance (AMR) surveillance program in Canada. Collection of high-quality data over time will allow the feedlot industry to document appropriate information that ensures both animal and public health and welfare.*



**QUESTIONS?
EMAIL US!**

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