Evaluating the impact of farm management and antimicrobial use practices on the emergence of antimicrobial-resistant *Campylobacter* isolated from Canadian turkey flocks

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Objectives: *Campylobacter* is the most common pathogen causing foodborne enteric diseases in humans in Canada. Consumption of poultry products is the main source of campylobacteriosis. The emergence of antimicrobial resistance (AMR) in *Campylobacter* is a global public health issue. **Materials and methods** A total of 729 Campylobacter isolates were included in this study that was recovered from fecal samples collected by 16 veterinarians from 199 turkey flocks across five Canadian provinces between 2016 and 2019 by the Canadian Integrated Program for Antimicrobial Resistance Surveillance (CIPARS). The antimicrobial susceptibility of isolates to nine antimicrobials was determined by broth microdilution using the automated Sensititre™ methodology and CAMPY™ plates. Mixed-effects logistic regression models accounting for veterinarian- and sampling-year-level clustering and exposure time were built to evaluate associations among resistance to fluoroquinolones and tetracyclines in *Campylobacter* isolates and flock-level antimicrobial use (AMU) practices, described as the number of defined daily doses per kg-animal days at risk. We also built logistic regression models were built to assess the impact of farm management practices on the emergence of fluoroquinolone and tetracycline-resistant *Campylobacter*. **Results:** The odds of tetracycline resistance were increased by using tetracyclines (OR=1.063; 95% CI: 1.004-1.123) and streptogramins (OR: 1.006; 95% CI: 1.002-1.01) during the turkey's rearing period. The odds of fluoroquinolone-resistant isolates were decreased by the use of aminoglycosides and penicillins. Farms that stored manure adjacent to barns increased the odds, and farms that dry-cleaned and washed the barns between flock placement decreased the odds of having tetracycline-resistant *Campylobacter*. **Conclusion**: Our study underlines the importance of continuous on-farm surveillance of foodborne pathogens in turkey flocks to evaluate the influence of AMU and farm management practices on the emergence of AMR. Monitoring AMR in poultry flocks is essential to prevent and reduce the transmission of antimicrobial-resistant foodborne pathogens to humans.