

CIPARS – 15 YEARS OF ANTIMICROBIAL RESISTANCE AND ANTIMICROBIAL USE SURVEILLANCE IN PIGS ALONG THE FOOD CHAIN

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Introduction

Antimicrobial use (AMU) and antimicrobial resistance (AMR) in animals have come under scrutiny internationally. The Canadian Integrated Program for Antimicrobial Resistance Surveillance (CIPARS) is a national program that combines AMR data from humans and the food chain with AMU data from animals, plants, and humans to better understand AMR.

Materials & Methods

For pigs, CIPARS samples pork chops from grocery stores, intestinal contents from healthy pigs at slaughter, and feces from healthy grow-finish pigs on farm. Farm surveillance also collects data on AMU. The development of CIPARS has been a collaborative process since 2002 involving: the swine, poultry, and beef industries, the processing and pharmaceutical industries, as well as government agencies.

Results

CIPARS findings have been useful from both the human and food animal perspective. Highlights from 15 years of surveillance data demonstrate that: 1) Vancomycin resistant enterococcus (VRE), an important pathogen in human health, was not isolated in any samples from along the food chain between 2002 and 2011, when testing was discontinued. This differs from the European situation. 2) Although a relatively small sample size, CIPARS Farm data are representative of the Canadian swine industry. CIPARS Farm AMR data from ~95 farms closely mirror those from CIPARS Abattoir which represents over 80% of pigs slaughtered in Canada. 3) Integration of multiple metrics provides a more complete understanding of CIPARS AMU data. Generally, these analyses indicate a decrease in the total quantity of AMU in pigs between 2015 and 2016. However, some

differences were observed between the mg/PCU (mg per kg of animal) and DDD (doses per kg of animal) estimates. Depending on metric, the ranking of the top 3 antimicrobials used in feed differed.

Discussion & Conclusion

The CIPARS program provides data useful for evidence-based decision making in the human and agri-food sectors.