Antimicrobial drug use on United States dairy operations

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Food borne illness and antimicrobial susceptibility of food borne pathogens is a growing global concern. To better control food borne illness and antimicrobial resistance requires a better understanding of the ecology of pathogens and commensal organisms on the farm.

To determine the prevalence of food borne pathogens in fecal samples collected from finisher pigs on farms in the United States and to characterize their susceptibility to a panel of antimicrobial drugs fecal samples were collected and cultured quarterly from late finisher pigs on farms in 5 states for 2 years. All isolates (Salmonella, Campylobacter, Enterococcus, and E. coli) were evaluated for susceptibility to a panel of antimicrobial drugs using either a micro-broth dilution system or the E-test.

Overall, Salmonella, Campylobacter, Enterococcus, and E. coli were recovered from 9.1% (720/7920). 61.3% (1930/3150). 63.7% (2026/3182) and 89.3% (2840/3182) of the samples tested. Salmonella was recovered from fecal samples on 70.4% (38/54) of swine operations studied. Tetracycline resistance was widespread (91.3%) among the Salmonella isolates while resistance to other antimicrobials was much less common. Management variables, including antimicrobial exposures, are being evaluated for association with resistance outcomes. More work is required to identify the potential risk factors related to the prevalence and antimicrobial susceptibility of food borne pathogens on United States swine operations.