

## PUBLIC HEALTHWORKER SAFETY

**Title:** Monitoring of Antimicrobial Resistance in Food Animal Production: Partnership between National Antimicrobial resistance Monitoring System (NARMS) and Academia – **NPB #11-175**

revised

**Investigator:** Wondwossen A. Gebreyes

**Institution:** The Ohio State University

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### Scientific Abstract

A pilot on-farm antimicrobial resistance monitoring program on four pathogens of pork safety significance (*Salmonella*, *Campylobacter*, *Escherichia coli* and *Enterococcus* spp) in partnership with university, industry and federal agency (USDA) was conducted in swine production systems located in four major swine producing states: Iowa, North Carolina, Minnesota and Ohio. A total of 4,426 fresh fecal samples from 148 barns from the four states were collected and shipped to USDA-ARS BEAR laboratory on the same day of collection for an overnight delivery. Each fecal sample was examined for the presence/absence of *Campylobacter*, *E. coli*, *Enterococcus*, *Salmonella* as well as MRSA and the isolates were tested for antimicrobial resistance. The prevalence of the pathogens varied from 78%-89% (*Campylobacter*), 97.8%-99.5% (*E. coli*) and 3.3%-12.4% (*Salmonella*) among the four locations. The proportion of antimicrobial resistant foodborne (*Salmonella* and *Campylobacter*) and commensal organisms (*E. coli* and *Enterococcus*) recovered from the study locations was relatively high and various antimicrobial resistance patterns were detected. Multidrug resistance (MDR) was very common among foodborne as well as commensal organisms included in this pilot study. The one-year monitoring project will be very helpful in understanding and monitoring antimicrobial resistance among major foodborne and commensal pathogens and develop a representative sampling scheme that may help build a national on-farm monitoring program.

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These research results were submitted in fulfillment of checkoff-funded research projects. This report is published directly as submitted by the project's principal investigator. This report has not been peer-reviewed.

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For more information contact:

National Pork Board • PO Box 9114 • Des Moines, IA 50306 USA • 800-456-7675 • Fax: 515-223-2646 • [pork.org](http://pork.org)

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