Title: National Pork Board Antibiotic Resistance Database – NPB #16-268

Investigator: Dr. Arthur Miller, Dr. Richard Whiting

Institution: Exponent

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Scientific Abstract:

All projects currently listed in the National Pork Board (NPB) research database relating to antibiotic resistance were identified, summarized, and categorized. After developing a search term strategy, each relevant research project was briefly abstracted and characterized using a risk analysis based categorization system modified from article 6.10.1 of the World Organization for Animal Health (OIE) Terrestrial Health Code. Of the 70 research projects that met the selection criteria, 5 projects (7%) addressed only animal diseases. In contrast, 63 projects (90%) addressed objectives that potentially affected human health. The remaining 2 projects (3%) potentially addressed both human and animal health. Sixty seven projects (96%) were classified into one of three modified OIE categories, including; Hazard Identification (17, 24%), Release Assessment (26, 37%) and Exposure Assessment (24, 34%). Over half (43, 61%) of the research projects required a secondary classification because the reported data and observations met multiple category criteria. Research projects assigned a primary classification of Hazard Identification typically characterized the prevalence of bacteria resistant to various antibiotics used in pig production. Research projects assigned a primary classification of Release Assessment typically addressed the effects of antibiotic applications on development and prevalence of antimicrobial resistant bacteria within the pig and subsequently the farm environment. Research projects assigned a primary classification of Exposure Assessment included observations of exposure of antibiotic resistant bacteria to farm workers and pork eating consumers. Only three research projects were classified as either Risk Estimation or Risk Management. Additionally, 14 research projects (20%) involved post-harvest results (pork, retail, etc.), while the majority reported results at pre-harvest stages (nursery, transportation, etc.). Many of the research projects reported the identification or prevalence of specific antibiotic resistant microorganisms. Of the 70 research projects, Salmonella, E. coli and MRSA were studied or isolated the most frequently.