

# Poultry workers at increased risk of carrying antibiotic-resistant E. coli

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Poultry workers in the United States are 32 times more likely to carry E. coli bacteria resistant to the commonly used antibiotic, gentamicin, than others outside the poultry industry, according to a recent study conducted by researchers at the Johns Hopkins Bloomberg School of Public Health.

While drug-resistant bacteria, such as E. coli, are common in the industrial broiler chicken environment, this is the first U.S. research to show exposure occurring at a high level among industrial poultry workers. The results are published in the December, 2007, edition of Environmental Health Perspectives.

“The use of antimicrobials in industrial food production has been going on for over 50 years in the United States,” said the study’s lead author, Lance B. Price, who serves on the research faculty at the Johns Hopkins School of Medicine, Division of Infectious Disease, and is a scientific advisor to the Johns Hopkins Center for a Livable Future. “Some estimates indicate that well over half of the antimicrobial drugs produced in the United States are used in food animal production. In the U.S. alone, over nine billion food animals are produced annually.”

The study was conducted with poultry workers and community residents in the eastern shore regions of Maryland and Virginia, and it confirms similar studies in Europe showing that poultry farmers and workers are at risk of exposure to drug resistant E. coli bacteria. The Maryland and Virginia regions on the Delmarva Peninsula are among the top broiler

chicken producing regions in the U.S., producing more than 600 million chickens annually.

In the study, researchers conducted in-depth analyses of 49 study participants, 16 working within the poultry industry and 33 community residents. Stool samples from the participants were tested for resistance to the antimicrobials ampicillin, ciprofloxacin, ceftriazone, gentamicin and tetracycline. Findings showed that poultry workers had 32 times greater odds of being colonized with gentamicin-resistant *E. coli* than other members of the community.

“One of the major implications of this study is to underscore the importance of the non-hospital environment in the origin of drug resistant infections,” said Ellen K. Silbergeld, PhD, senior author of the study.

Price, PhD, and other researchers note that as food animal production shifted from the independent farmer to large-scale, industrialized operations, the use of antimicrobials in feeds intended to stimulate growth has increased. Currently 16 different antimicrobial drugs are approved for use in U.S. poultry production with gentamicin reported to be the most widely used.

Source: Johns Hopkins University

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