Antibiotic-resistant pathogens and poultry

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Medical illustration of nontyphoidal salmonella. Credit: U.S. Centers for Disease Control and Prevention

(Medical Xpress)—With recent headlines about dangerous "superbugs," an outbreak of Salmonella from chicken parts on the West Coast and the announcement by a national restaurant chain that it plans to serve only "antibiotic-free" chicken, it's no wonder the public is alarmed and confused.

The subject of antibiotic-resistant pathogens and poultry is complicated,

frightening and easily sensationalized, according to a food-safety expert in Penn State's College of Agricultural Sciences.

The term superbug was popularized by the news media, referring to drug-resistant bacteria that cause serious disease in humans. Infections from these pathogens are difficult to treat because the organisms don't respond to a number of commonly used antibiotics.

"Every time the discussion of superbugs comes up, people immediately seem to identify food as the major issue," said Martin Bucknavage, extension food-safety specialist. "Primarily they identify meat and poultry as a source in the development and dissemination of superbugs."

But while there are antibiotic-resistant bacteria associated with meat and poultry, Bucknavage noted that the following facts should help clarify some of the myths associated with multi-drug resistant pathogens.

- According to the U.S. Centers for Disease Control and Prevention, the most important source of antibiotic-resistant organisms is in hospitals. Another major factor is the over prescribing of antibiotics to people by doctors.
- The use of antibiotics in animals is regulated. "The administration of those drugs is limited to prevention and control of illness in the herd or flock, and regulations require that sufficient time pass after administration of the drugs so that there are no residues in the meat at the time of slaughter," Bucknavage explained. "The use of antibiotics to promote growth is not permitted."
- The classes of antibiotics used in animals generally are different than those used in people.
- Having antibiotic resistance does not necessarily mean an organism is a superbug. "Many organisms can have resistance to antibiotics and not cause illness, or in other cases, pathogens can

have resistance to antibiotics that are not normally used to treat human illness," Bucknavage said.

- Many bacteria have naturally occurring antibiotic resistance, so to have raw meat or poultry with no antibiotic-resistant microorganisms is virtually impossible.
- If people properly handle, prepare and cook meat, they will eliminate potential pathogens that may be present. Antibiotic resistance does not give organisms the ability to survive proper cooking or cleaning.

"Now this is not to say that people can't get ill from multi-antibiotic resistant pathogens," Bucknavage said.

"There has been the ongoing case of Foster Farms chicken in California that had been a source of severe illness. Some product was recalled—that was product that was cooked at a grocery store and then most likely mishandled, leading to cross contamination."

He said that, according to the CDC, the Salmonella strain found to have antibiotic resistance in the Foster Farms case is resistant to an antibiotic that rarely is used to treat people for salmonellosis, although the CDC pointed out that having antibiotic resistance can be associated with increased risk of hospitalization in infected individuals.

The bottom line, Bucknavage emphasized, is that consumers should not be stressed that their raw chicken may contain superbugs.

"Certainly any raw meat can carry pathogens," he said, "but these can be controlled through proper handling to prevent cross contamination and by cooking the meat to 165 F or higher."

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