Latest Foodborne Illnesses Show Links Between Farm Antibiotic Use and Resistant Bacteria in U.S. Poultry Supply

An ongoing outbreak of *Salmonella* Heidelberg this year has already sickened nearly 300 people who consumed contaminated chicken, according to the Centers for Disease Control and Prevention. The FDA collected *Salmonella* from chicken and CDC analyzed *Salmonella* from sick people. They found resistance to combinations of the following antibiotics: ampicillin, chloramphenicol, gentamicin, kanamycin, streptomycin, sulfisoxazole, and tetracycline.

CDC noted, "Antimicrobial resistance may increase the risk of hospitalization or possible treatment failure in infected individuals."

There is no publicly available information indicating which, if any, antibiotics were used to produce the chicken linked to these illnesses, but the U.S. Food and Drug Administration released some data that indicates such drugs are used to produce meat and poultry. Following is a drug-by-drug analysis based on FDA reports.

Table 1

Antibiotics and Our Meat Supply

Seven drugs at the center of the recent *Salmonella* outbreak

Drug	Antibiotic class	Kilograms of class sold for use in food animals, 2011	Approved for growth promotion or routine disease prevention in chickens	Percentage of *Salmonella* on retail chicken resistant to antibiotic, 2011	Recommended to treat non-resistant *Salmonella* infections[1]
Ampicillin	Penicillins	880,163	No, but cross-reacts with drugs approved for growth promotion and routine disease prevention*	40.5%	Yes
Chloramphenicol	Amphenicols	Not approved for food animal use; only available with a veterinary prescription	No approved uses in poultry production	0.6%	Yes
Gentamicin	Aminoglycosides	214,895	No, but it is one of the most widely used in poultry production[2]	3.8%	No
Kanamycin	Aminoglycosides	214,895	No, but cross-reacts with drugs approved for growth promotion and routine disease prevention*	11.4%	No
Streptomycin	Aminoglycosides	214,895	Yes	38.6%	No
Sulfisoxazole	Sulfas	371,020	No, but cross-reacts with drugs approved for growth promotion and routine disease prevention*	44.9%	No, but a related drug is (trimethoprim/ sulfamethoxazole)
Tetracycline	Tetracyclines	5,642,573	Yes	65.8%	No

Note:

Bacteria exposed to one antibiotic may develop resistance to other drugs. Using tetracyclines, for example, to produce chickens can contribute to the emergence of *Salmonella* that are resistant to ampicillin.

Sources: Food and Drug Administration, "2011 Summary Report on Antimicrobials"; U.S. Department of Agriculture, "Food Animal Residue Avoidance Database"; Food and Drug Administration, "Retail Meat Annual Report, 2011"; David Heymann, *Control of Communicable Diseases Manual*, 19th Edition (APHA Press, 2008)

Endnote

1 David Heymann, *Control of Communicable Diseases Manual*, 19th Edition (APHA Press, 2008).

2 Taradon Luangtongkum et al., "Effect of Conventional and Organic Production Practices on the Prevalence and Antimicrobial Resistance of Campylobacter spp. in Poultry," *Applied and Environmental Microbiology* 72, no. 5 (2006): 3600-07.

For further information, please visit:

saveantibiotics.org

Contact: Joshua Wenderoff, senior communications officer, The Pew Charitable Trusts
Email: jwenderoff@pewtrusts.org
Phone: 202.540.6542
Project website: saveantibiotics.org