Data ties human illness to farm antibiotics

By Eliza Barclay, NPR

Are the antibiotics the livestock industry uses on animals responsible for antibiotic-resistant infections in people? Bacteria are notoriously hard to follow from farm to fork, but more pieces of the puzzle are coming together that suggest the answer is yes.

Earlier this year, government researchers published data on tests conducted on supermarket meat samples gathered in 2011 by the National Antimicrobial Resistance Monitoring System. The tests detected several nasty bugs that cause disease in humans – salmonella, Campylobacter and E. coli.

As if the presence of these microbes weren't enough, the researchers found that a lot of the bacteria were strains resistant to antibiotics, making them even more dangerous for humans. The implications were significant – that the bacteria had become resistant to antibiotics back at the farm because farmers were overusing them.

The findings, released through the joint program of the Food and Drug Administration, the Department of Agriculture and the Centers for Disease Control and Prevention, got little attention when they were published in February. But this week, the Environmental Working Group, which opposes some of the livestock industry's use of antibiotics, analyzed the government data and highlighted some of their startling implications in a report.

EWG researchers found that 53 percent of raw chicken samples were contaminated with antibiotic-resistant E. coli. Resistant salmonella was also common on the meat samples: Of all the salmonella found on the chicken samples, some 74 percent were

antibiotic-resistant. And 26 percent of the chicken tested positive for resistant Campylobacter.

“Not all of the salmonella or E. coli that makes us sick is coming from meat,” says Dawn Undurraga, a nutritionist at EWG and the lead author of the report. “But a large portion of it is coming from the meat.”

Lance Price, an expert on antibiotic resistance and a professor at George Washington University who reviewed the EWG report, concurs.

“This report isn’t fear mongering,” says Price. “Food is an underappreciated potential route of exposure to drug-resistant bacteria. And it’s a huge potential source for emergence of the next true superbug.”

Mike Apley, a veterinarian at Kansas State University who specializes in cattle raised in feedlots, has frequently defended the livestock industry’s use of antibiotics for disease prevention and treatment. But he agrees that the new data suggest that the appearance of drug-resistant strains of harmful bacteria on meat is a problem.

“We need to continue to look at how resistant E. coli, salmonella and Campylobacter are making people sick,” he tells NPR. “It would be very reasonable to look at that from the use of antibiotics for food animals.”

Advocacy groups like EWG say the biggest problem is the industry’s use of antibiotics for growth promotion, feed efficiency and prevention of disease.

As Andrew Gunther, program director for Animal Welfare Approved, wrote this month: “The problem for humans is that by allowing intensive livestock farms to routinely expose bacteria to regular sub-therapeutic levels of antibiotics … we are actually providing the ideal conditions for bacteria to mutate and become resistant to their effects.”

And resistance can jump from animal pathogens to human pathogens.

Many scientists and food advocacy groups are pushing for tighter regulations on the industry and more details about how it uses antibiotics. That includes Price, who says that the meat production system has grown too dependent on antibiotics to keep animals healthy. Ultimately, he says, antibiotics are a crutch for a system that relies on confining large numbers of animals in a way that increases their susceptibility to disease.

“If you have a food animal production system that makes animals sick in a predictable way, you need to change the system,” says Price.