


Study finds resistance levels not lower in antibiotic-free burger meat

 cidrap.umn.edu/news-perspective/2018/11/study-finds-resistance-levels-not-lower-antibiotic-free-burger-meat

Chris Dall | News Reporter | CIDRAP News | Nov 28, 2018

A new study by researchers with the US Department of Agriculture has found similar levels of antimicrobial resistance (AMR) in ground beef raised with and without antibiotics. The findings appeared in the *Journal of Food Protection*.

The authors of the study say the data, along with previous research they've done on AMR in conventionally raised and "raised without antibiotics" (RWA) cattle, suggest that antimicrobial use in US cattle production has "minimal to no impact on AMR in the resident bacteria."

The finding comes at a time of heightened concern about the use of antibiotics in food-producing animals, who consume between 70% and 80% of medically important antibiotics sold worldwide, and how that use affects human health. The World Health Organization and other public health groups have called for limits on their use in livestock and poultry, arguing that widespread use of these drugs for growth promotion and disease prevention in healthy animals contributes to the emergence of drug-resistant pathogens, which can be transmitted to humans through meat.

That concern has resulted in growing consumer demand for meat raised without the use of medically important antibiotics. The biggest impact has been seen in the poultry industry, as several major chain restaurants and poultry producers have committed to removing medically important antibiotics from the production chain. Advocates for antibiotic-free meat are now pushing the beef and pork industries to make similar changes.

But the authors of the study say there has been little peer-reviewed research that supports claims that RWA meat products harbor lower levels of antibiotic-resistant bacteria, and most of it involves poultry. They say their findings suggest those claims may not be warranted for ground beef.

"We found that there are similar levels of antibiotic resistance in conventional and RWA meats," lead author John Schmidt, PhD, a research microbiologist with the USDA Agricultural Research Service, told CIDRAP News. "So you can't support with the data the notion that there's more antibiotic resistance in conventional ground beef...at least in the United States."

Resistance in meat from both production systems

To compare AMR levels in conventionally raised and RWA ground beef, Schmidt and his colleagues collected ground beef samples over a period of 13 months from three food-service supply companies that received conventional and RWA meat from multiple cattle-harvesting facilities. Of the 370 samples collected, 191 were from conventionally raised cattle and 179 had an RWA label.

Schmidt also added that the findings should not be construed as a license to use antibiotics in food-producing animals without regulation.

Defining 'antibiotic-free'

Gail Hansen, DVM, a public health and veterinary medicine consultant who was not involved in the research, said the findings are a good testament to how well the beef industry has responded to the 1993 outbreak of *E coli* O157:H7 linked to contaminated beef patties from Jack in the Box, an outbreak that sickened more than 700 people and resulted in the deaths of four children.

"The industry responded by changing some of their practices, and among the practices they've put into place are sanitary procedures and processes to minimize microbial contamination on ground beef," Hansen told CIDRAP News. "What the study shows is that when you do those things, you reduce bacteria on ground beef, both the antibiotic resistant and the antibiotic susceptible bacteria."

But it also shows that antibiotic-free labels on ground beef and other meat products should be taken with a grain of salt. "Not all 'raised without antibiotics' animals are kept in places that have always been antibiotic-free, and because antibiotic-resistant bacteria and resistance genes aren't static, they can get into the food supply," Hansen said. "Just because it's raised without antibiotics doesn't mean that it's going to be completely free of bacteria, and it's not going to be free of antibiotic-resistant bacteria."

Hansen also notes that the study looks at only one avenue through which antibiotic use in livestock and poultry can affect human health. "Antibiotic-resistance genes can get into the manure, into the soil, into the water, into the air," she said. "I think we need to be looking beyond what's going from muscle meat into our mouths; we need to be looking at antibiotic resistance in a much broader, One Health context."

See also:

Nov 26 *J Food Prot* [study](#)

Aug 31, 2011, *Nature* [study on resistance in permafrost](#)