



A Closer Look at the FDA Antibiotic Retail Meat Report

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Perhaps, like me, you've wondered what percentage of retail [meat](#) has foodborne pathogens, and of those, which pathogens are antibiotic resistant.

Well, you're in luck. The Food and Drug Administration's National Antimicrobial Resistance Monitoring System puts out a yearly report looking at the rates of antibiotic resistance of foodborne pathogens in retail meat and poultry samples. A thorough examination, the [Retail Meat Report](#) is hefty chunk of research to wade through. Because of this, it's not easy to make conclusions on the prevalence of antibiotic resistance in the [meat](#) case just by reading through the report's 80-plus pages.

So, I was fortunate that after the 2011 report was released last month to get a chance to talk to several FDA researchers.

I asked Patrick McDermott, director of the National Antimicrobial Resistance Monitoring System at the FDA Center for Veterinary Medicine, how he would characterize the rate of antibiotic resistance in the 2011 report compared to what was found in previous years' reports.

The answer to that isn't neat and tidy, he explained. It depends, he said, on factors like what drug is being used and the food animal source.

Understandably, what the researchers are most concerned about are the levels of resistance to the drugs humans depend on.

"So if we saw oh, let's say streptogramin resistance fluctuate in enterococcus, we'd be much less concerned even if that went up quite a bit than if we saw ceftriaxone resistance in salmonella," McDermott said.

McDermott said the three most important drug for treating [foodborne illnesses](#) are cephalosporin, fluoroquinolones and macrolides.

"If you look at fluoroquinolones and macrolides for salmonella and campylobacter respectively the news is pretty good. It's pretty low," McDermott said.

However, the resistance situation isn't as sunny for the antibiotic cephalosporin.

"The cephalosporin resistance in salmonella is a bit more of a concern because we have seen some trends in certain serotypes where it's gone up. For example, in salmonella newport in cattle we saw ceftriaxone resistance go up for the past decade — well, it went up for a few years and has been high for the past decade now — so that's an important issue. We've seen the same thing for salmonella heidelberg for poultry that it seems to have been increasing as well."

When pathogens are present in retail meat, the findings suggest that in some cases a large amount are resistant to at least one type of antibiotic.

For example, 12% of retail chicken sampled contained salmonella, and of those salmonella samples, 74.1% were resistant to one or more antibiotics.

This seemed a bit high to me, so I confirmed with the experts that I was reading the report the right way.

"That's absolutely correct," said Emily Creary, National Antimicrobial Resistance Monitoring System epidemiologist, FDA Center for Veterinary Medicine.

Furthermore, more than three-quarters of turkey samples contained E. coli and 74.8% of samples were resistant to one or more antibiotics.

You might be wondering what causes the variation year to year in antibiotic resistance in these pathogens living in retail meat.

"We're working to get better at understanding the impact of use on resistance, so really all we can do is speculate," McDermott said.

"We know in the case of salmonella that sometimes resistance just changes because a different serotype becomes predominate in food animals, and we've seen that happen historically. So, I think it's a combination of drug use practices and just variations in the biology, maybe even the ecology of these organisms as they turn over periodically year to year in farms across the United States," McDermott said.

SN blog: [3 Ways to Change Meat Department Culture](#)

This research is important to ensure that antibiotics continue to be effective in humans when needed.

"We definitely know strains, resistant strains, are moving from the farm through food to people. Fortunately most of the infections people get, diarrhal diseases — most people don't seek a physician's care to begin with — most of them are self resolving and aren't treated with antibiotics. It's really a small proportion of them in which antibiotics are considered really essential for managing the case," McDermott said.

In 2010, FDA asked food producers to voluntarily move to "judicious use" of antibiotics in livestock, only when necessary.

The FDA is now tracking the amounts of antibiotics sold each year for use in farm animals in the Antimicrobials Sold or Distributed for Use in Food-Producing Animals report, but the agency says that it isn't able yet to see any overarching trends in the data.

"Is there a meaningful trend over time either in escalating quantities or declining quantities, we probably need to see a bit more time, a longer period of time, to get a sense whether there's actually a meaningful trend or not," said William Flynn, deputy director for science policy at FDA.

In the third annual report, FDA recorded that 30.3 million pounds of antibiotics were sold for use in domestic or exported food livestock. This is a 2.1% increase from the 2010 report, by my calculations.

Today, [the New York Times published an editorial by David Kessler](#), the former commissioner of the FDA, advocating for a bill that would allow the FDA to get more information both from drug suppliers and food producers on when and why the antibiotics are given to livestock.

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