FSIS and Antimicrobial Resistance: NARMS Data Access and Integrated Report

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For over 23 years, the National Antimicrobial Resistance Monitoring System (NARMS) – a successful multiagency collaboration, has studied antimicrobial resistance (AMR) in the U.S. In this program, FSIS focuses on testing for AMR in microbial strains isolated from animals at slaughter and processing, the U.S. Food and Drug Administration (FDA) monitors the retail meat and poultry food products, and the Centers for Disease Control and Prevention (CDC) monitors bacterial AMR in humans. The State and local health departments in collaboration with the FDA and CDC help in monitoring AMR in foods and ill people.

The NARMS surveillance program periodically publishes its findings in the form of Integrated Reports (IRs). In the IRs, the NARMS agencies collaboratively summarize the most important AMR findings for *Salmonella*, *Campylobacter*, *E. coli* and *Enterococcus*. Additionally, both CDC and FDA host interactive tools on their websites for user friendly access and visualization of NARMS data. The FDA's NARMS Now: Integrated Data portal allows access to FSIS cecal (beginning of the large intestine) AMR data. The public can view or query FSIS cecal content data along with retail products and human AMR data from FDA's NARMS Now: Integrated Data portal.

In the 2018 Integrated Report (publication pending), FSIS compiled and examined AMR data from the food products and cecal content from swine, cattle and poultry for the presence of *Salmonella spp.* and *Campylobacter spp.* The IR also includes AMR information on generic *Escherichia coli*, and *Enterococcus* isolated from cecal content.

While the full 2018 IR will be available soon at FDA's NARMS Now: Integrated Data portal, a few highlights are listed below:

- The majority (80%) of *Salmonella* from humans were not resistant to any of the antimicrobials tested (remains unchanged from 2017), which suggests that current antibiotics can be considered highly effective.
- In *Salmonella* from humans, multidrug resistance (MDR) has remained constant at around 10% for the last 11 years.
- While there is an overall decline in *Salmonella* serotypes Typhimurium and Enteritidis; a relatively rapid emergence of a MDR serotype Infantis was noted in cecal content, food products, and humans.
- The MDR *Salmonella* Infantis has overtaken other leading serotypes in U.S. poultry.
- Although, MDR Infantis registered an increase the overall MDR in *Salmonella* has stayed consistent over the years.

Overall, FSIS is optimistic about the AMR data presented in this report. MDR strains of target pathogens in humans remain at a relatively low level and the threat to consumers can be similarly assumed as low. Whether resistant to antimicrobials or not, to protect individuals and families from foodborne pathogens, FSIS recommends the four safe food preparation steps: Clean, Separate, Cook and Chill.