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Surprising discovery of antimicrobial resistance in turkey meat

Imported turkey meat shows surprisingly high levels of resistance to third-generation cephalosporins, which are antimicrobial agents widely used to treat humans. These are some of the findings of the 2022 DANMAP report prepared by DTU National Food Institute and Statens Serum Institute.

According to the WHO, antimicrobial resistance is one of the biggest threats to global health. DANMAP therefore monitors resistance in the bacteria Escherichia coli, Salmonella, and Campylobacter towards commonly used and critically important antimicrobial agents for both humans and animals.

Surprising measurements of turkey meat
In 2022, DANMAP detected a high level of resistance to third-generation cephalosporins in E. coli from imported turkey meat. Third-generation cephalosporins are a group of critically important antimicrobial agents that are widely used to treat humans.

The findings were made after new EU legislation on the monitoring and reporting of antimicrobial resistance has entered into force. With that, it is the first time that turkey meat has been examined in line with the new EU regulations.

“As this is the first year that DANMAP has monitored turkey meat according to the EU’s new regulations, the result must be interpreted with caution. Time will tell whether this is an isolated finding or whether the level of resistance to this group of antimicrobial agents in bacteria from turkey meat should be considered a public health problem,” explains Ana Sofia Ribeiro Duarte, Senior Researcher at the DTU National Food Institute.

Unclear why resistance is increasing
DANMAP also shows that there has been an increase in resistance to fluoroquinolones in Campylobacter from Danish-produced broiler chickens over the past decade. Fluoroquinolones are antimicrobial agents used to treat infections—life-threatening and otherwise—in humans.

After a decrease in 2020 and 2021, fluoroquinolone resistance in Campylobacter jejuni from broiler chickens once again increased in 2022, returning to the level observed two years prior. Although annual fluctuations in resistance must be interpreted with caution due to varying data availability, fluoroquinolone resistance in Campylobacter jejuni from broiler chickens is increasing both in Denmark and other EU countries.

“The reason for the increase in fluoroquinolone-resistant Campylobacter jejuni in Denmark is yet unclear, as fluoroquinolones are not used to treat food-producing animals here,” says Ana Sofia Ribeiro Duarte.

In cattle, DANMAP reports a decrease in resistance in Campylobacter jejuni bacteria and an increase in resistance in E. coli bacteria.

Pork has also seen a decrease in the occurrence of multiresistant Salmonella Typhimurium for the third year in a row.

Low resistance in Denmark compared to most of the EU
Overall, a lower occurrence of antimicrobial resistance has been detected in Denmark than in most

other EU countries. This is a result of authorities, researchers, and business organizations working together for several decades to regulate the use of antimicrobial agents in both humans and animals.

Read more
Since 1995, the DANMAP programme has monitored the use of antimicrobials in humans and animals in Denmark as well as the occurrence of antimicrobial resistance among bacteria from animals, humans, and food. The organisations behind DANMAP are DTU National Food Institute and Statens Serum Institut.

Download the DANMAP report for 2022 from DANMAP's website.

Interested parties can also read 'Decision (EU) 2020/1729 on the monitoring and reporting of antimicrobial resistance in zoonotic and commensal bacteria' in the Official Journal of the European Union.

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