



DANMAP

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Stable occurrence of antimicrobial resistance in animals and meat

The occurrence of antimicrobial resistance in food-producing animals and meat in Denmark is relatively stable, according to the annual DANMAP report.

The occurrence of resistance in bacteria from food-producing animals raised in Denmark and Danish meat in 2018 is roughly on par with the year before. This is one of the findings in the DANMAP report for 2018 from Statens Serum Institute and the National Food Institute, Technical University of Denmark.

Over the past five years, there has been a small but steady decline in the proportion of *E. coli* bacteria from Danish pigs that are resistant to one or more types of antimicrobials. As such, resistance was detected in 57% of the *E. coli* bacteria from finishers in 2014, while the figure had dropped to 47% in 2018. During the same period, both the authorities and the industry in Denmark have introduced a number of measures to reduce the use of antimicrobials in pigs.

"It is not possible to demonstrate a direct correlation between cause and effect. However, the monitoring data show us that during a period when the use of antimicrobials in pigs has declined, there has also been a slight decrease in the overall occurrence of resistance in common *E. coli* bacteria from pigs," Senior Academic Officer Helle Korsgaard from the National Food Institute says.

Particularly important resistance in broilers

Cephalosporins and carbapenems are groups of antimicrobials that are used to treat serious, life-threatening infections in humans. Since 2015, the EU has systematically monitored the presence of bacteria that are resistant to these critically important types of antimicrobials. The enzymes that cause cephalosporin resistance are called ESBL and AmpC, while carbapenem-resistant *E. coli* bacteria are called CPE.

DANMAP 2018 has looked for resistance in *E. coli* bacteria from broilers, and none of the randomly selected samples produced ESBL or AmpC enzymes, or were CPE. More sensitive methods were also used to search specifically for cephalosporin resistance in a large number of *E. coli* bacteria from each broiler flock. These studies found ESBL/AmpC producing bacteria in 15% of the broiler flocks that were included in the study.

The same sensitive methods have found at least one ESBL- or AmpC-producing bacterium in 15% of the packs of Danish-produced chicken meat and in 46% of the packs of imported chicken meat that were included in the study.

Thus, the occurrence of ESBL/AmpC in Danish broilers and chicken meat is level with 2016. Even when using the sensitive methods, CPE has still not been detected in neither animals nor meat in Denmark.

"Antimicrobial resistance is a global problem, as resistance in one country can create problems beyond its borders e.g., through the export of food and travel. Therefore, in order to tackle the resistance problem, international measures are needed alongside the effective Danish measures," Helle Korsgaard explains.

Not a significant source of blood stream infections

It is very rare that the specific types of ESBL/AmpC bacteria that are detected in Danish animals and meat are also detected in blood stream infections in Danish patients.

"Thus, chicken meat sold in Denmark does not appear to be a major source of blood stream infections in humans, which are caused by ESBL- or AmpC-producing coli bacteria," Professor Rene Hendriksen from the National Food Institute emphasizes.

Read more

Since 1995, the DANMAP programme has monitored the use of antimicrobials in humans and animals in Denmark, and the occurrence of antimicrobial resistance in bacteria in animals, people and foods. The DANMAP report is prepared by the National Food Institute and Statens Serum Institute—the Danish national institute for surveillance and preparedness of human infectious diseases.

[Download the DANMAP report from DANMAP's website.](#)

You can read about how the use of antimicrobials in animals has developed in the press release: [Prudent use of antimicrobials in Danish animals continues.](#)

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