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Antibiotic resistance in animals and meat is generally stable

The occurrence of antibiotic resistance in bacteria from food-producing animals and meat in Denmark was stable or decreasing in 2021. However, a few notable findings of critical resistances have been identified, the annual DANMAP monitoring shows.

In 2021, the occurrence of resistance in bacteria from food-producing animals reared in Denmark was generally at the same or lower level than in the previous year. This is shown in figures from the DANMAP report for 2021, produced by the DTU National Food Institute and Statens Serum Institut (SSI).

Critically important resistance found

In some remarkable aspects, results from 2021 differ from previous years. Bacteria with resistance to the critically important antibiotics of the classes carbapenems and macrolides were detected in a few samples. "Critically important" is a special status given by the WHO to certain types of antibiotics which use must be strictly limited to ensure that they remain effective in the future and can be used to treat serious infections in humans.

In 2021, carbapenem resistance was detected for the first time in a *Campylobacter* recovered from a single sample from pigs in Denmark. However, the finding coincides with a change in the testing method.

"It is unclear whether the observations in 2021 are due to changes in monitoring, or whether food-producing animals may be on their way to becoming reservoirs for some critically important resistances. It's something we have to keep an eye on," says Senior Researcher Sofia Duarte from the DTU National Food Institute.

Low resistance in Denmark compared to most of the EU

Overall, the figures show that a generally lower level of resistance in bacteria has been found in food-producing animals raised in Denmark in 2021 compared to the year before. Both when it comes to resistance in *Campylobacter* from cattle and poultry as well as resistance and multidrug-resistance in *Salmonella typhimurium* from Danish pork.

In imported beef, on the other hand, a higher level of *E. coli* bacteria resistant to 3rd generation cephalosporins was observed compared to the previous year. This is a continuation of an increase seen since 2017.

Overall, a lower prevalence of antibiotic resistance in bacteria from food-producing animals and meat has been observed in Denmark compared to most other EU countries. This is a result of authorities, researchers, and business organizations working purposefully together to control the use of antibiotics in both humans and animals for several decades.

Read more

Since 1995, the DANMAP program has monitored the human and veterinary use of antibiotics in Denmark, and the occurrence of antibiotic resistance among bacteria from animals, humans, and food. DANMAP is produced by the DTU National Food Institute and the Statens Serum Institut.

[Download the DANMAP report for 2021 from DANMAP's website.](#)

Also, read about the development in veterinary antibiotic consumption in the press release: [Antibiotic consumption for animals continues to fall.](#) The development in the occurrence of

resistant bacteria in humans is described in more detail in the press release: [Antibiotic consumption fell significantly during the pandemic.](#)

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