

Antibiotic Use and Resistance in Danish Pig Production

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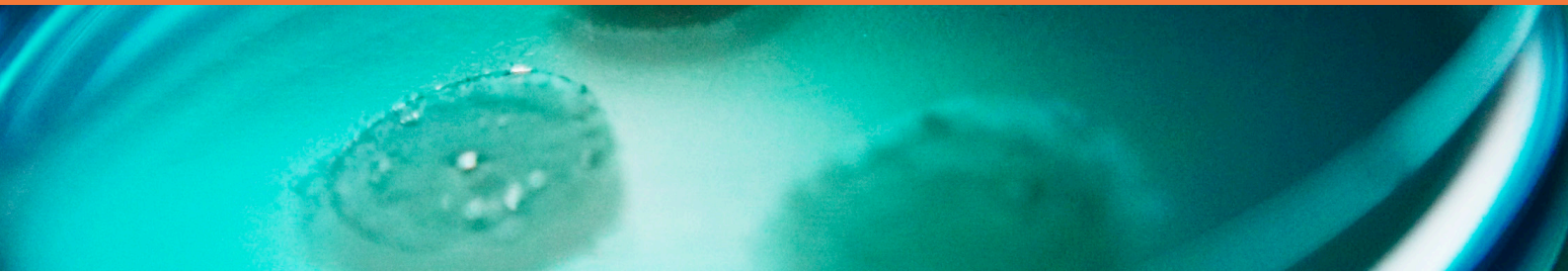
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BACKGROUND

In recent times, there has been considerable public debate about the ethical aspects of using antibiotics in animals, the implications for human health, and the possibilities for reducing antibiotic use. In this context, DTU has prepared this scientifically documented fact sheet.

FACTS

- Antibiotic resistance is transmitted from livestock to humans.¹⁻⁵
 - Sometimes this occurs directly, as with Salmonella and livestock-associated MRSA; other times it occurs indirectly via mobile genetic elements – but it does occur.
 - In some cases, the impact is immediate, while in others the implications for treatment options in humans may only become evident in the longer term.
- Any use of antibiotics in livestock production will lead to an increased occurrence of antibiotic resistance.^{1-3,6,7}
 - Sometimes we see a rapid and substantial effect, other times a slower and smaller one, but it does occur.
- Some antibiotics can be administered to pigs either by injection or through water or feed. When the same amount of antibiotic is given in water or feed, the selection pressure for resistance is stronger than when it is given by injection.^{6,7}
- There is considerable variation in how much antibiotic is used per kilogram of pig produced between individual herds. Some conventional pig herds use almost no antibiotics, and the 25% of herds that use the most use six times more antibiotics than the 25% that use the least.⁸
- If pigs are moved between herd owners during the transition from weaners to finishers, approximately one-third more antibiotics are used per pig produced compared with pigs that are not moved.⁸
- The discontinuation of zinc oxide in pig production led to a general 5% increase in antibiotic use in weaner herds. However, there were large differences between herds, and 2/5 continued producing weaners without increasing antibiotic use.⁸
- There is generally very large variation in antibiotic use between herds serviced by the same veterinarian, but no major variation in how much or which antibiotics the individual veterinarian prescribes to the same herd over time.⁸
- The widespread movement of pigs between herds means that antibiotic-resistant bacteria are quickly and efficiently spread to almost all herds.⁹⁻¹²



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(A small selection primarily based on Danish studies)

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