



CHECK AGAINST DELIVERY

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Danish testimony on the July 14th Hearing about Antibiotic Resistance in the
Livestock Industry organised by the Subcommittee on Health

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Thank you, Mr. Chairman, Mr. Ranking Member, and Members of the Subcommittee, for inviting me to testify.

As a representative of the Danish government I am aware that the use of antibiotic growth promoters is a contentious issue here in the US and that Denmark is often mentioned in the debate. Against this background I wish to emphasize that the Danish government is not represented here today to advocate for or against any specific legislative proposals. However, we are an open nation, willing to share our experience when requested and therefore we have accepted your kind invitation.

I have submitted five fact sheets for the record, and with the Subcommittee's indulgence, I will therefore shorten my remarks to allow for your questions.

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Denmark is a major livestock producer in Europe, and the worlds' largest exporter of pork. The Danish livestock production is highly industrialised, intensive and applies modern management principles. Due to the significance for the Danish economy the National Government takes the competitiveness of the Danish farmers seriously.

Treatment with antibiotics is in many cases essential for human and animal health and an uncritical use of antibiotics can lead to several antibiotics becoming ineffective.

Because antimicrobial resistance can be transferred between bacteria, regardless of whether the bacteria are pathogenic or not, the development of antimicrobial resistance in any kind of bacteria can constitute a problem.

It is a fact that antimicrobial resistance can be transferred from animals to humans by consumption of meat and every year also Denmark experience human outbreaks caused by consumption of meat, contaminated with antimicrobial resistant bacteria.

A ban on antimicrobial growth promoters was considered necessary for several reasons: There was science-based evidence that the use of antibiotics in animal feed could create resistance in pathogenic bacteria to medically important antibiotics, and there was a real concern that doctors would run out of options for treating life-threatening infections in humans.

Given the fact that very recently, a Danish PhD project concluded that production animals and meat might be a source of human *E. coli* urinary tract infections, the Danish ban seemed to be an example of due diligence.

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Among the initiatives, that are all mandated by the Danish government, I would like to mention the following:

- No prophylactic use of antimicrobials and mandatory low fixation of the veterinarians profit from sales of medicine.
- The critically important antibiotics fluoroquinolones can only be used, if a laboratory test shows, that no other antibiotics can be used.

- Treatment guidelines for swine and cattle veterinary practitioners have been issued.
- Each individual veterinary practitioner is subjected to risk management and risk communication on prudent and reduced usage of antibiotics.
- Continuous monitoring and research in antimicrobial resistance in animals, humans and food.
- Monitoring of food borne pathogens in Danish as well as imported meat. Antimicrobial resistance is one of the parameters used to determine whether a shipment of food is dangerous.
- Control and action plans to combat Salmonella bacteria in poultry and pork and Campylobacter in poultry are all implemented.

And the most recent development includes mandatory action plans in swine-herds above a certain threshold value for antibiotics usage – the so called ‘yellow card’ initiative.

It is important to note that, according to our experience, a ban on antibiotic growth promoters can immediately and dramatically reduce the amount of antibiotics used. In Denmark the decrease was 40%. But such a ban should not stand-alone in the long run. This explains the fact that we have implemented this range of follow up measures and we expect also to have to take additional steps in the future.

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I would now briefly present some results of the initiatives:

The ban of growth promoters has resulted in a marked reduction in antimicrobial resistance as measured among several different bacterial species in food animals. The percentage of macrolide resistance in porcine Campylobacter has decreased from 80% before the ban to less than 20% in 2006. A similar re-

duction from more than 75 % vancomycin resistance in enterococci isolated from broilers before the ban to less than 5% in 2006.

Additionally, Denmark has a markedly lower level of resistant bacteria in meat compared to imported meat from other EU member states. I can mention as an example, that the percentage of cephalosporin resistance in *E. coli* isolated from Danish broiler meat is less than 5%, while more than 35% of *E. coli* isolated from broiler meat from other EU-member states reveal cephalosporin resistance. This marked difference in resistance can be ascribed to our ban of growth promoters and low usage of antimicrobials compared to other EU countries. According to data from the European Food Safety Authority the total consumption of antimicrobials in food producing animals in 2007 was 120 metric tons in Denmark and almost 600 metric tons in another EU country with a comparable type of pig production.

The ban of growth promoters came into force in 1995 and we noted a substantial decrease of 40% in the consumption of antibiotics in the years thereafter.

The Danish swine industry has been producing pigs without the use of growth promoters for many years now and has increased both the production and the productivity. The same picture applies in the broiler chicken and cattle industries.

15 years after the ban the overall amount of antibiotics used for animals in Denmark is still almost 40% below the pre-ban level. As some US observers has pointed out, there has been an increase in the consumption of antimicrobials for therapeutical use during the post-ban years, but it has to be remembered, that the pig production has increased 25% in the same period, which can account for more than the increase in consumption of antimicrobials.

In the last few years and particularly in 2009 we have noted an increase of usage of antimicrobials above the concurrent increase in pig production. However, as this increase appears more than 10 years after the ban of growth promoters, we do not relate this to the ban. Nevertheless, we take this recent increase in usage seriously and have imposed the above-mentioned recent initia-

tive - the 'yellow card' where farms using antibiotics above a certain threshold are mandated to reduce their use.

Salmonella levels have been between 0-2 % in eggs and chicken, and the Salmonella level in pork has remained low.

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When presenting the Danish experience here in the US, it is important to stress that Denmark is favoured by a range of institutional characteristics which helped implementing the ban and the following steps.

- In Denmark we can identify every herd, farmer and veterinarian and we are able to pinpoint the antimicrobial usage right down to the individual cow and to an age-group of swine. This is due to our many databases on husbandry and medicine usage. And we have also monitored and researched in resistance for the past 15 years in a targeted program called DANMAP.
- Our farming industry is highly organised in a co-operative structure with one common organisation for farmers and food companies. We have a longstanding tradition for working towards a consensus between government and industry and this was also the case with the ban on antimicrobial growth promoters.
- Working as an entity, the Danish swine industry has therefore played an important role and voluntarily stopped all non-therapeutic use of antibiotics, starting in 1998, with a total state ban in place by January 2000. Only two weeks ago the Danish swine industry again issued a voluntary ban; this time against therapeutic treatment with the critically important antibiotic Cephalosporin.
- Danish farmers are well educated and have easily learnt to produce pigs without antibiotic growth promoters. Instead they use good management,

weaning at 28 days, initiatives concerning feed and proper care of sick animals.

Thus, institutional advantages have enabled Denmark to take ambitious risk mitigating strategies in order to combat antimicrobial usage and resistance – and without endangering the economic sustainability of the swine industry.

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In conclusion Denmark can state the following results:

- Antimicrobial resistance is reduced after the ban
- Total antibiotic consumption in food producing animals has been reduced by almost 40% from the mid 1990's till today
- Animal health has not been compromised
- Agricultural productivity has continued to improve
- The farmer's economy has not been significantly threatened
- Food safety in Danish products of animal origin has significantly improved as regards specifically Salmonella and Campylobacter
- A range of institutional factors helped Denmark implement the ban
- A ban on antibiotic growth promoters can be a very substantial and fulfilling first step in combating antimicrobial resistance, but should not stand alone in the long run

If you have any questions I will gladly answer them, and I will also direct our attention to the fact sheets handed out. Thank you for your attention.