FACT

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Myths and Facts about Denmark's Growth Promoter Ban and Its Implications for the US

Myth: The ban failed to reduce the quantities of antibiotics used in animal agriculture.
Fact: **Denmark's comprehensive data on antibiotic use in agriculture clearly show a significant drop in total antibiotic use. In 2001, after the ban had been fully implemented, total antibiotic use in livestock was 94,200 kg – a 54% reduction from the 205,686 kg used in 1994 (WHO, 2003). Antimicrobials used for disease treatment (a portion of total use) have trended upwards since 1996 (prior to the ban) and this continued after the ban resulting in a total use of 112,500 kg in 2004 (the latest year for which data are available). Danish authorities attribute this rise to the spread in Denmark of viral diseases unrelated to the growth promoter ban (DANMAP 2004).**

Myth: The ban had a significant negative impact on animal production in Denmark.
Fact: **The overall impact of the ban on animal production was minimal (WHO, 2003). The greatest impacts of the ban were modest changes in mortality and rate of growth in nursery pigs (those up to about 50 pounds). Between 1998 and 2000 – the period when the ban was initially implemented – mortality among nursery pigs increased slightly, from 2.9% to 3.5% (Callesen J., 2002). However, even with this minor increase, in 2000 overall post-weaning pig mortality in Denmark was similar to that on large U.S swine farms – about 7% in both nations (USDA-APHIS 2001). Thus, while the mortality rate for nursery pigs was somewhat higher in Denmark than in the U.S., the mortality rate for finishers (those from 50 pounds to slaughter weight) was lower. Mortality in finishers is more problematic, because it represents a greater loss of investment by the farmer in feed and time. Impacts of the ban on finishing pigs, poultry, and cattle were negligible (WHO, 2003).**

Myth: The ban did not lead to reductions in antibiotic resistance.
Fact: **The ban led to significant reductions in resistance to classes of drugs that were covered by the ban, including macrolides, streptogramins, and glycopeptides (WHO 2003). The prohibited drugs are generally active against gram-positive bacteria. The ban did not cover drugs active against gram-negative bacteria such as *Salmonella* and *E. coli* , for the simple reason that Denmark had never approved those drugs as feed additives in the first place (largely due to concerns about resistance). Unsurprisingly, the ban did not affect resistance to drugs not covered by the ban or in most gram-negative bacteria. One exception occurred in the gram-negative pathogen *Campylobacter,* in which resistance is selected for by the macrolide antibiotics. In this case, prohibiting the growth promoter use of macrolides resulted in a significant drop in resistant *Campylobacter* in swine, even though swine treatment with macrolides increased during this period (resistance in *campylobacter* from poultry was never high, so a drop there was not detectable). In Denmark, most drugs used for disease treatment in animals (penicillins, tetracyclines, and sulfonamides) were never approved for growth promoter use. By contrast, penicillins, tetracyclines, and sulfonamides are all used in swine for growth promotion in the U.S. In fact, chlortetracycline is the most commonly used growth promoter in U.S. nursery pigs.**

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