

## Impact of vaccination on the consumption of antimicrobials in Danish weaners, 2013

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The development of antimicrobial resistance due to use of antimicrobials (AM) in livestock production is increasingly causing public concern. Vaccination might be an alternative to use of AM in some instances. One hypothesis could be that herds that purchase vaccines use them to prevent disease and consequently have lower AM consumption than herds purchasing fewer or no vaccines against these pathogens.

The objective of this study was to analyse whether the consumption of AM in weaning pigs in Danish sow herds varied according to the combinations of vaccines used against Porcine Circovirus Type 2 (PCV2), *Mycoplasma hyopneumoniae* (MYC) and *Lawsonia intracellularis* (LAW).

Aggregated data for year 2013 were extracted from the Danish Central Husbandry Register and the Danish database of prescriptions of medication for livestock (VetStat). All active one-site pig herds with >50 sows and >200 weaners were selected. AM prescribed for weaners were measured in animal daily doses (ADD) and divided according to gastro-intestinal indication, respiratory indication or total use.

The analysis was based on multivariable linear regression models of the herd level ADD for each indication group. The vaccination combinations were included as one explanatory variable with eight levels representing the 2x2x2 combinations of vaccines, and the number of weaner pig pen places was included to the models as a potential confounder representing herd size.

Out of the 1,513 herds in the study, 1,415 had AM prescribed for gastro-intestinal disorders, and 836 for respiratory disorders. PCV2 vaccines were purchased in 880 herds, MYC vaccines in 787 and LAW vaccines in 115 herds. Herds purchasing PCV2 and MYC vaccines used significantly more AM than herds not purchasing vaccines or only purchasing LAW vaccines.

The fact that vaccination did not appear to reduce the use of AM may be explained by some herds experiencing clinical problems associated with MYC or PCV2 despite use of vaccination. In other herds, it might reflect that vaccines are used for disease prevention in finishers rather than in the weaners. Vaccination protocols and herd health status were not available in the study, so further studies are required to investigate causality of the associations between AM use, vaccination practices and other confounding on-farm factors.

**Key-words:** antimicrobial consumption, alternatives, vaccination.