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Publication date:
2015

Document version
Peer reviewed version

Document license:
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Citation for published version (APA):
Kruse, A. B., Nielsen, L. R., & Alban, L. (2015). *Vaccination against A. pleuropneumoniae as an alternative strategy to antimicrobial use in Danish finisher pigs*. Poster session presented at Safe Pork 2015, Porto, Portugal.

Vaccination against *A. pleuropneumoniae* as an alternative strategy to antimicrobial use in Danish finisher pigs

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Background

Demand for effective strategies that can prevent diseases in pig production and thereby minimize the need for treatment with antimicrobials. Could vaccination be such strategy?

Objective

Determine whether initiation of vaccination against *Actinobacillus pleuropneumoniae* (*App*) had any effect on antimicrobial consumption in finisher pig herds compared to finisher herds without vaccination



Methods

Data on antimicrobial usage in 134 finisher pig herds were extracted from the Danish VetStat database.

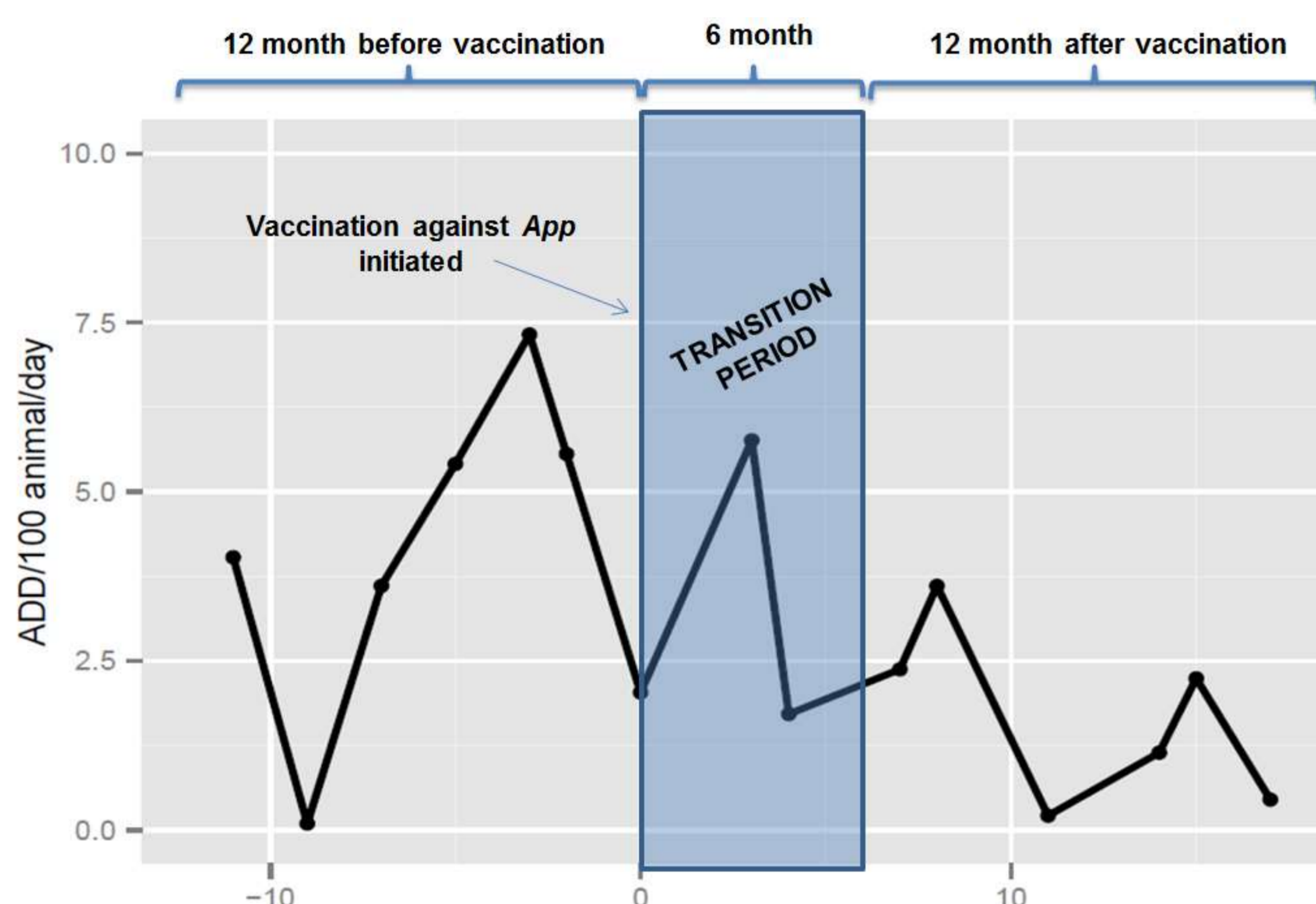


Figure 1 Example of antimicrobial usage data from 1 herd for a period of 12 months before and 12 month after vaccination against *App* was initiated. Consumption in the transition period of 6 month was not included in the study

Multivariable linear regression model

Outcome: Change in Animal Daily Doses, ADD_{Change} (average ADD before vs. after vaccination)

Test the effect of possible risk factors in the model

- Baseline antimicrobial use
- Herd size and biosecurity level (SPF enrollment)
- Year and season for initiating vaccination

Data from 590 finisher pig herds without vaccination were tested in the same model with change in ADD (average ADD before vs. after a random date)

Results

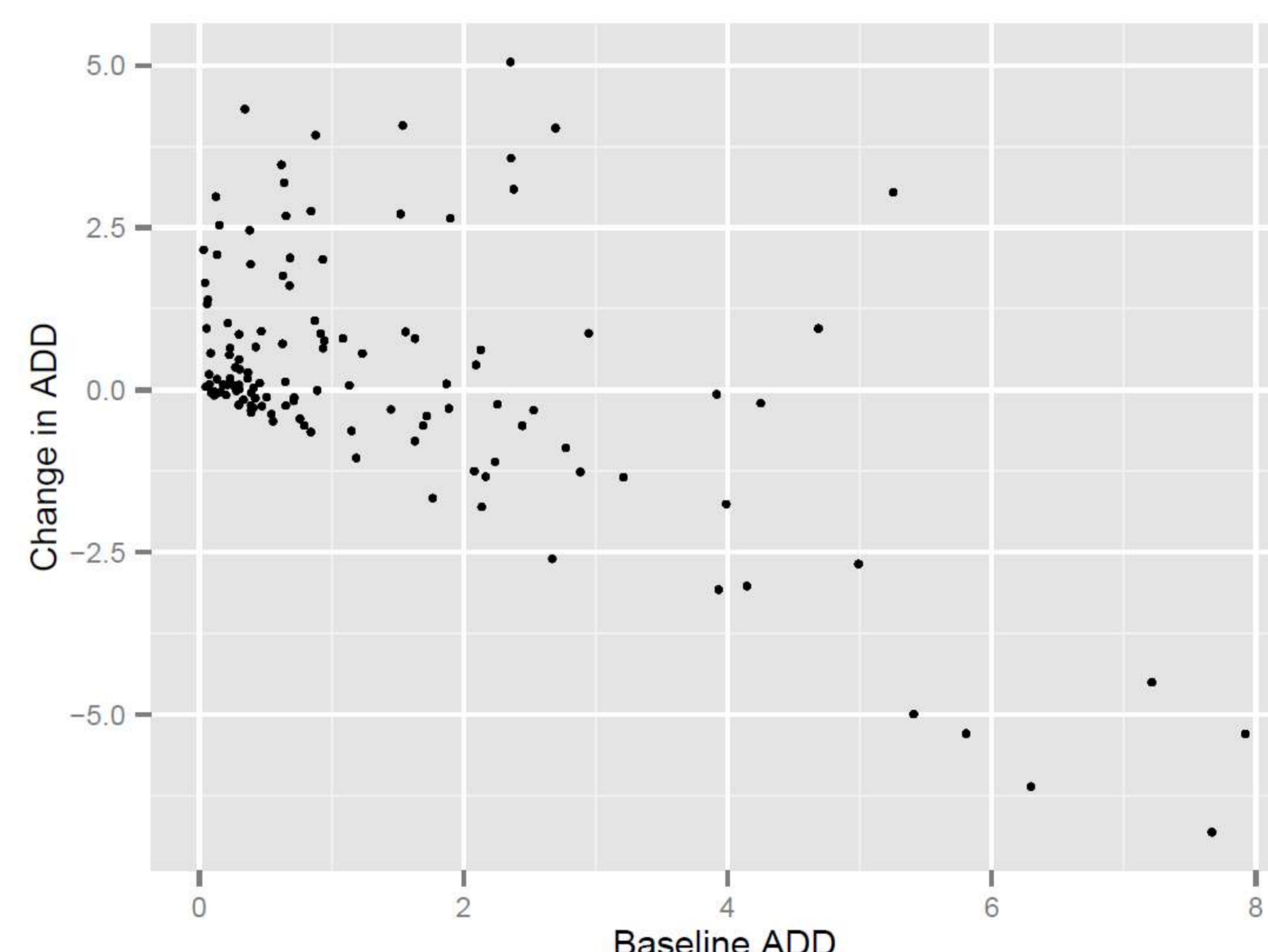


Figure 2 Change in ADD after vaccination plotted against ADD baseline. Each dot represent one out of the total 134 Danish finisher pig herds with vaccination against *App*.

Baseline antimicrobial use, $ADD_{Baseline}$ had a significant effect on the change in ADD in finisher pigs after vaccination (N = 134)

$$ADD_{Change} = 1.2 - 0.8 \cdot ADD_{Baseline}$$

The model shows that herds with a usage above 1.2 ADD/100animal/day had a decrease in antimicrobial consumption after vaccination, which was proportional to their baseline consumption before vaccination

However, baseline consumption also had a somewhat similar effect on ADD_{change} when data from herds without vaccination were tested in the model (N = 590)

$$ADD_{Change} = 1.1 - 0.6 \cdot ADD_{Baseline}$$

Conclusion

The change in antimicrobial use after vaccination against *App* depended on the baseline antimicrobial use during the year before vaccination. It was not affected by season, year, herd size or official biosecurity level (SPF-status). The baseline effect was more pronounced in vaccinated herds compared to herd without vaccination indicating an effect of vaccination against *App* on the antimicrobial consumption level.