

Effect of Influenza A virus sow vaccination on infection in pigs at weaning: A prospective longitudinal study

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Key Points:

- Sow vaccination against IAV was effective at reducing the number of infected groups of pigs at weaning, and the number of positive nasal swab pools within a group.
- Both prefarrow or whole herd vaccination protocols, and use of commercial or autogenous inactivated vaccines yielded significant and similar reduction of IAV infections in pigs at weaning.
- Sow vaccination can help control IAV infections in pigs at weaning and thus minimize transmission to growing pigs and other farms.

Introduction

While producers and veterinarians spend a lot of resources trying to figure out the best influenza A virus (IAV) sow vaccination strategy for their herds, vaccination is then often implemented without any follow-up measure of effectiveness on influenza infection parameters post-vaccination. In this study, the effects of sow vaccination protocols and type of vaccines on IAV infections in pigs at weaning from a cohort of 52 breed-to-wean farms were prospectively assessed. The final aim was to provide information on the effectiveness of various vaccination protocols implemented under field conditions.

Materials and Methods

A cohort of 52 breeding herds belonging to different pork-producing companies at different locations in the United States were voluntarily enrolled according to their IAV history and sow vaccination protocol. Each enrolled farm submitted 30 nasal swabs collected from pigs prior to weaning on a monthly basis for 6 months, between January 2013 and November 2013 (prospective longitudinal study). On each herd, one pig was sampled in each litter by conveniently selecting 30 litters located in the farrowing room(s) housing the oldest piglets prior to wean in the farm. Nasal swabs were tested for IAV by reverse transcription (RT)-PCR.

Results and Discussion

On the 52 farms, 48% (n=25) tested IAV positive for at least one monthly sampling during the study. Overall, of 9,150 nasal swab pools (3 individual nasal swabs/pool), 15% (458/3050) of pools tested IAV positive. At the farm level, 44% (14/33) of the vaccinated farms tested IAV positive at least once. Thus, there were no statistical difference in the number of positive farms between vaccinates and non-vaccinates, and between farms with different vaccination protocols and vaccine types. At the group level however, the proportion of IAV-positive pigs at weaning in vaccinated farms was lower (16%) than in non-vaccinated ones (40%). The odds of groups of pigs testing IAV positive at weaning were significantly lower in vaccinated farms compared to non-vaccinated ones.

In summary, sow vaccination against IAV was effective at reducing the number of infected groups of pigs at weaning, and the number of positive pools within a group. Compared with no vaccination, both prefarrow or whole herd vaccination protocols, and use of commercial or autogenous inactivated vaccines yielded significant and similar reduction of IAV infections in pigs at weaning.

Read the full paper here: <https://onlinelibrary.wiley.com/doi/abs/10.1111/tbed.13688>