Project Update: Swine breeding herd monitoring for influenza virus after mass vaccination

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Background

- Influenza A virus continuous to be an important respiratory pathogen in swine.
- The ecology of the disease is not well understood and effective control measures are lacking.
- Control of swine influenza through pre-farrow vaccination has been widely used in North America.
- The rapidly changing nature of the virus has made control challenging and vaccination results are variable.
- Avian influenza control efforts in Italy focused on vaccination at the flock level successfully controlled the spread of the virus in face of an outbreak. (Capua et al., 2007)
- Presently there are no data regarding the use of mass vaccination in swine breeding herds.

Objective

The objective of this observational study was to monitor the shedding dynamics in breeding females and their offspring after whole breeding herd mass vaccination.
Results

- Only two swabs from breeding females tested positive for influenza before mass vaccination. There were no positive swabs after mass vaccination.
- A significant increase (P < 0.001) between pre- and post-vaccination antibody titers was detected in breeding females.

<table>
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<th>Week of the Year</th>
<th>Percentage of positive RRT-PCR nasal swab samples</th>
<th>14 day-old suckling piglets</th>
<th>21 day-old suckling piglets</th>
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<tr>
<td>6</td>
<td>First Breeding Herd Mass Vaccination</td>
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<td>66.7</td>
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<td>11</td>
<td>Second Breeding Herd Mass Vaccination</td>
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</table>

Table 1. Summary of RRT-PCR nasal swab test results for swine influenza virus in 14 and 21 day-old suckling piglets

Conclusions

- Influenza virus circulates in suckling piglets, especially in pigs just prior to weaning.
- Antibody titers to influenza virus in breeding females increased after vaccination.
- Prevalence of influenza virus shedding sows and suckling pigs decreased below detectable levels after vaccination.

Implications

- Vaccination of the entire breeding herd can reduce viral shedding in both sows and suckling piglets.
- Suckling piglets may be a source of virus to other pigs.
- Mass vaccination can play a role in reducing influenza transmission in a breeding herd.