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Swine Disease Eradication Center

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## SDEC Partners Research Update

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

**Investigators: Cesar A. Corzo; Marie Gramer; Michael Kuhn; Marty Mohr; Robert B. Morrison**

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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

Week of the Year	Percentage of positive RRT-PCR nasal swab samples	
	14 day-old suckling piglets	21 day-old suckling piglets
6	First Breeding Herd Mass Vaccination	
8	6.7	26.7
10	66.7	80
11	Second Breeding Herd Mass Vaccination	
12	33.3	43.3
14	0	23.3
16	0	0
18	0	0
20	0	0

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.