



Allen D. Leman Swine Conference



Volume 39
2012

Published by: Veterinary Continuing Education

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Injection site reactivity comparison of two commercial PCV2 vaccines in nursery pigs

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Introduction

Vaccines against Porcine Circovirus Type 2 (PCV2) infection have been available in the European and North American markets since 2004 and 2006, respectively. Adjuvants are incorporated into most licensed vaccines to stimulate the immune system. Some adjuvants may contain mineral oil or other inflammatory substances which, while stimulating the immune system, may also lead to injection site lesions. The objective of this study was to compare injection site reactivity of two, U.S. licensed, commercially available, single dose PCV2 vaccines up to 21 days postvaccination.

Materials and Methods

This study utilized 326 weaned pigs, housed under commercial settings. Pigs, approximately 21-28 days of age, were individually tagged in the right ear and randomly allocated to one of three treatment groups. All pigs were palpated on the right side of the neck to verify the absence of existing lesions prior to allocation. The three groups were assigned to one of the following treatment groups (Table 1):

Table 1. Study design

Group No.	Treatment	Dosage
1	Ingelvac CircoFLEX®	1 ml
2	Fostera™ PCV	2 ml
3	Saline	2 ml

Ingelvac CircoFLEX® is a registered product of Boehringer Ingelheim Vetmedica, St. Joseph, MO and Fostera™ PCV is a registered product of Pfizer Animal Health, NY, NY

In all treatment groups, pigs were vaccinated, between 21-28 d of age, according to manufacturer's label instructions in the muscle of the right neck using disposable (18 ga 5/8") needles. Needles were changed after every 5th pig per treatment group to simulate field conditions. Pigs

were inspected for visible lesions and individually palpated on days 1, 2, 3, 7, and 21 following injection. Inspections were conducted by personnel blinded to treatment groups within the barn. Additionally, all farm personnel and statistician were blinded to treatment assignment within the barn. Treatment means were compared using Fisher's Exact test and considered significant at $P < 0.05$.

Results

The number of pigs with measurable injection site lesions are shown in Table 2.

Table 2: Number (percent) of pigs containing a measurable injection site swelling

Days post-injection	Ingelvac® CircoFLEX	Fostera™ PCV	Saline
d1	0/109 (0%)	0/109 (0%)	0/108 (0%)
d2	0/109 (0%)	0/109 (0%)	0/108 (0%)
d3	0/109 (0%)	0/109 (0%)	0/108 (0%)
d7	0/109 ^a (0%)	11/109 ^b (10.1%)	1/108 ^a (0.9%)
d21	0/109 (0%)	3/109 (2.8%)	0/108 (0%)

^{ab}Means within a row with different superscripts differ (Fisher's Exact Test, $P < 0.05$)

Conclusions and Discussion

Based on the results of this study, single dose PCV2 vaccines differ in the ability to induce injection site reactivity. Treatment 2 had a significantly greater number of pigs with cervical lesions on d7 post-injection compared to pigs vaccinated with Trt 1 or saline. No differences were detected in injection site lesions between pigs vaccinated with Trt 1 and pigs vaccinated with saline throughout the trial.