

# Porcine Circovirus (PCV)

## What is Porcine Circovirus?

Two strains of porcine circovirus, a small DNA virus affecting swine, can infect pigs. The first strain, porcine circovirus type 1 (PCV1), has not been found to cause any disease in swine. The second strain, porcine circovirus type 2 (PCV2), is significantly different from PCV1 and has been found to infect and cause disease in pigs.

While a majority of swine farms today have positive results in blood tests for PCV2, only a small percentage actually show signs of having a disease associated with the virus. This indicates that while there is a strong link between PCV2 and various disease syndromes, there are other environmental and management conditions that contribute to disease manifestation.

Much about PCV2 remains unknown as researchers try to understand the factors that contribute to progression from PCV2 infection to PCV2-associated clinical disease (PCVAD).

## What are the diseases associated with PCV2?

Poor growth, increased mortality, and weight loss progressing to emaciation in pigs between the ages of 5 and 18 weeks are the most common clinical signs. Other clinical signs include enlarged lymph nodes, difficulty breathing, jaundice, fever, stomach ulcers, diarrhea, and sudden death. Generally, fewer than 5 percent of pigs in an affected herd show clinical signs but morbidity and mortality can reach 40 percent. Most pigs that show signs of the disease do not recover or respond to treatment.

## How is PCV2 diagnosed?

It is important to remember that PCV2 infection is common in most pig populations but only a small percentage of infected pigs become affected by the disease. Most laboratories accustomed to diagnosing swine diseases can microscopically evaluate tissues to determine if there are lesions consistent with PCVAD. Virus can be detected in serum, semen, and tissues using a molecular diagnostic test, polymerase chain reaction, and by virus isolation and immunohistochemistry. Widespread infection of pigs by PCV2 limits the usefulness of serologic monitoring except for specific purposes.

## How can PCV2 be prevented?

Although there are now three licensed PCV2 vaccines in the US, there have been few controlled experiments evaluating vaccine efficacy. Preliminary reports from veterinarians and producers indicate promising results. However, because PCVAD seem to occur as the result of the interaction of the virus with other factors, careful attention to environmental and management conditions are important for reducing the severity of PCVAD, including:

- Using biosecurity and sanitation practices such as avoiding introduction of live animals, minimizing farm traffic, frequently cleaning and disinfecting facilities, and controlling rodents, insects and birds on the farm
- Implementing production strategies of acclimating replacement animals before entering the herd, ensuring adequate intake of colostrum by piglets, minimizing cross-fostering activity, and reducing group size
- Ensuring a stable environment by maintaining proper ventilation of the facilities and sustaining appropriate temperature and humidity levels
- Controlling for other illnesses and diseases by staying up-to-date on vaccinations, promptly treating ill pigs, and isolating extremely ill pigs

## Are there treatments for pigs with PCV2-related diseases?

Because PCV2 is a virus, antibiotic therapy is generally not very effective in treating PCV2-related diseases. However, because other diseases and infections can occur simultaneously with PCV2-related diseases, treatment should focus on their reduction, which can be achieved through use of biosecurity, sanitation, production, environmental, and disease-control strategies listed above.

This fact sheet provides general information. Please contact your veterinarian or diagnostician for specific information related to your animals.

## For more information go to:

National Pork Board and American Association of Swine Veterinarians Swine Health Fact Sheet  
[www.pork.org/porkscience/documents/circovirus.pdf](http://www.pork.org/porkscience/documents/circovirus.pdf)

For clarification of information presented on this fact sheet, email [VDL@umn.edu](mailto:VDL@umn.edu). Updated: 10/25/06