

# Porcine reproductive and respiratory syndrome (PRRS)

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## Nature of the disease

Porcine reproductive and respiratory syndrome (PRRS) is a relatively recently (USA, 1987) recognised disease of pigs. The causative agent is a virus classified in order of Nidovirales family of the Arteriviridae. The disease is characterised by reproductive failure, death in young pigs and mild respiratory disease in pigs of all ages.

## Classification

OIE List B disease.

## Susceptible species

The pig is the only known host.

## Distribution

PRRS was first seen in the USA in 1987. Serological evidence suggests that it may have been present in Canada before this. It was first reported in Europe in 1990 and is now endemic in many European countries. Serological and/or virological evidence of infection has been found in Japan, Korea and the Philippines and Vietnam as well as South America and Caribbean countries.

## Clinical signs

The disease seems to have two different phases, the first one is the reproductive failure which principally affects sows and the second one is the respiratory disease, the course of the disease in a herd may last 6 to 12 weeks.

In the reproductive phase, clinical signs in sows include:

In the respiratory phase, clinical signs in sows include

In the reproductive phase, clinical signs in young pigs include:

In the respiratory phase, clinical signs in young pigs include:

Older pigs may show mild fever and anorexia, although usually less severe. Boars may show semen changes.

## Post-mortem findings

No specific lesions occur in sows, aborted or mummified foetuses. Lesions are more evident on piglets than older pigs and include:

## Differential diagnosis

Other cause of reproductive failure in pigs include:

Other cause of respiratory disease that may need to be considered include:

## Specimens required for diagnosis

Identification of the virus, can be done from clotted and heparinised blood samples from sick pigs or from fresh and preserved (in neutral buffered saline) ascitic fluids, organ samples (lungs, tonsils, lymph nodes, spleen). Techniques involve isolation on culture cells and identification by immunostaining, immunohistochemistry and hybridisation and PCR techniques have been recently developed.

Serological test can be performed from sera of acute and convalescent animals. Tests include ELISA (blocking and competition), immunoperoxidase monolayer assay and immunofluorescence assay. Antibodies are detected 1 to 2 weeks after infection and can be detected for about 4 months after infection. Serological diagnosis does not allow to differentiate post-vaccine antibodies from wild virus antibodies.

## Transmission

PRRS spreads rapidly through pig by contact, it is the main way of transmission, either within a herd or between herds through the introduction of infected animals. Moreover pigs can shed the virus for 3 to 4 months which make the disease more complicated to control inside a herd.

Semen is also known to be contaminant and genital transmission is thought to be an important way of spreading the disease.

Aerosols can also be a mean of transmission but does not appear to be as important as direct contact and genital transmission. Fomites seem to have an important role in the transmission of the disease.

While the virus is stable in refrigerated carcasses, it is only present in muscle in very low concentrations thus dressed carcasses are unlikely to pose a threat. Concentrations are higher in lymph nodes and lung tissue but the risk of transmission by feeding offal is unclear.

## Risk of introduction

The highest risks for introducing PRRS appear to be through the importation of live pigs or semen. If importing these from countries where PRRS is known to occur, appropriate procedures such as herd freedom certification, serological testing and quarantine should be followed.

## Control / vaccines

There is no specific treatment. Prophylactic antibiotics may reduce the incidence of secondary bacterial infections.

A killed virus vaccine is available and used in the USA. Also a modified live vaccine has been developed and are commercially available, yet they should not be administered to pregnant sows, naive herds and young animals in breeding age. Vaccination however does not prevent the infection by the virus but help reducing the level of the disease.

To control the disease, progressive depopulation of nurseries followed by thorough disinfection of the premises.

## References

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