

FAQ

Porcine Epidemic Diarrhea



What is PED?

Porcine epidemic diarrhea (PED) is caused by a coronavirus. This highly contagious disease is characterized by severe inflammation of the intestine, watery diarrhea, vomiting and dehydration. While all age classes of pigs can develop disease, mortality decreases with increasing age. In suckling pigs infection with the PED virus (PEDV) can cause high losses (up to 100 %).

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Where did or does the disease occur?

The disease first occurred in 1971 in Europe and caused high losses over the following years, particularly in Asia, where the disease rapidly spread in the pig population. Since May 2013, a particularly severe form of PED has caught a lot of attention in the USA. It has caused epidemics spreading at an explosive rate in many pig holdings and affecting all age classes of pigs. In suckling pigs mortality rates of up to 95 % have been observed. Sequencing of the virus isolates has revealed close relationship with Asian strains. On the whole genome basis low-degree particularities can be found (different sequence patterns, especially in the spike protein).

Recently, outbreaks with very high losses have been reported in Ukrainian pig holdings. These have been accompanied by up to 100 % losses in suckling pigs, severe symptoms in older animals and abortions in up to 30 % of pregnant sows. This virus is closely related with the highly virulent US American strains.

Does PED currently also occur in Germany?

Since May 2014, PED cases have been observed in Germany, with increasing case numbers in the winter. So far, well over 70 cases have been diagnosed (increasing tendency). In most cases disease rates are high and losses are low. Meanwhile, almost all federal states are affected.

However, some holdings report a high mortality in young suckling pigs (> 70 %); secondary infections and management may play a role.

Are highly virulent PEDV strains present in Germany?

To answer this question more than 20 PEDV full length sequences were established by next-generation sequencing and were subjected to comparative analyses. Based on these data the following statements can be made:

- 1) The German PEDV strains are closely related with each other and form a group which shows considerable differences to historic PEDV strains.
- 2) Similar viruses have been found among others in Italy, France, Austria, and the Netherlands.
- 3) There is a clear difference to highly-virulent US American and Asian strains.
- 4) There are strong similarities with one strain which also was described in the USA in cases with a mild clinical course.

Further investigations are required to help assess these findings.

How can PED be diagnosed?

Fecal samples can e.g. be investigated for coronaviruses by electron microscopy. Furthermore, the virus genome can be detected by real-time polymerase chain reaction. Cultivation in cell cultures rarely is successful. Different antibody ELISAs are available. Diagnostics can be carried out or organized by private veterinary diagnostic laboratories and the veterinary diagnostic agencies of the federal states.