

Actinobacillus pleuropneumoniae

Actinobacillus pleuropneumoniae (APP) is the etiologic agent of porcine pleuropneumonia, which is **one of the most important and highly contagious respiratory diseases** found worldwide.

APP has at least **18 different serotypes**. It is also an important pathogen in Porcine Respiratory Disease Complex (PRDC)

Infected animals may not show any clinical signs (main mechanism for the introduction into herds)

The disease is often characterized by:

- Sudden onset
- Peracute or acute clinical course
- High morbidity and mortality (as high as 10%)
- Chronic cases may appear following acute outbreaks



Economic impact

Annual costs of APP, depending on the severity of the disease, have been estimated to reach up to

\$27 (€24) per pig space for farms with low biosecurity.¹

ADG: can be reduced by up to 34%

FCR: can be increased by up to 26%²



The economic impact is **not limited to the mortality rate and reduced productivity** but also to increased condemnations at the slaughterhouse, leading to long-term economic loss.



Prevalence

APP is widely distributed throughout major swine-raising countries.

In the **US**, it is claimed that **80%** of farms are infected but disease is only observed in **20%**.³

In a **Spanish** report, almost **90%** of studied herds were serologically positive for APP.⁴

In a **Canadian** study, **78%** of herds were APP positive (by PCR in piglets).⁵

In naïve herds, APP occurs in all age groups but usually is seen in 6-20 week old pigs.



Diagnosis

Based on:

- The farm history
- Clinical signs (acute/peracute outbreak or chronic infection)
- Post mortem examination (including slaughterhouse exams).
- Typical pulmonary lesions (lung monitoring at slaughterhouse can help diagnosing chronic cases).
- Confirmed by culture, identification, and often typing of APP.
- Serology (just to identify serotypes, difficult interpretation due to cross reactivity between serotypes).

Clinical signs:

Acute or peracute outbreak:

- Severe breathing difficulties.
- Coughing.
- Haemorrhagic foam discharged from the nose or mouth just prior to death.
- High fever.
- Anorexia, depression and refusal to move.
- Cyanosis (blueing of the ears, nose, legs, and abdomen).
- Sudden death.

Chronic infection:

- Spontaneous or intermittent coughing.
- Slightly increased mortality.
- More pleurisy discovered at slaughter.

Serology:

A careful interpretation is needed, especially in the absence of clinical disease.

There are some tests available:

- ELISA: to perform routine surveillance of possibly infected herds.
- PCR.
- Microbiological culture.



Treatment and prevention

Acute outbreaks should be treated with injectable antibiotics to reduce mortality (if the outbreak occurs in piglets up to 10 weeks of age, consider sow vaccination).

Chronic APP needs an effective vaccination program.

If APP is endemic in a sow farm:



Depopulation is a possible approach for eradication



Thorough cleaning and disinfection of the buildings



Leaving barns empty for a few weeks



Restocking can then follow using APP-free pigs⁶

Farms free of APP should only introduce stock from APP-free herds and new stock should be quarantined.

¹ Stygar A. H. et al. Economic value of vaccination against *Actinobacillus pleuropneumoniae* in a fattening pig herd. Conference NJF seminar 476. Economics of Animal Health and Welfare. 2014.

² Straw B., 1989.

³ Mark White. *Actinobacillus pleuropneumoniae*. NADIS. 2007 (reviewed 2016)

⁴ Fraile L, Alegre A, Lopez-Jimenez R, Nafarrías M, Sagales J. Risk factors associated with pleuritis and cranio-ventral pulmonary consolidation in slaughter-aged pigs. Vet J. 2010;184:326-33.

⁵ MacInnes JJ, Gottschalk M, Lone AG, Metcalf DS, Ojha S, Rosendal T, et al. Prevalence of *Actinobacillus pleuropneumoniae*, *Actinobacillus suis*, *Haemophilus parasuis*, *Pasteurella multocida*, and *Streptococcus suis* in representative Ontario swine herds. Can J Vet Res. 2008;72:242-8.

⁶ Sassi EL, Bossé JT, Tobias TJ, Gottschalk M, Langford PR, Hennig-Pauka I. Update on *Actinobacillus pleuropneumoniae*-knowledge, gaps and challenges. Transbound Emerg. Dis. 2018.