# A look at ileitis through the lens of antimicrobial stewardship

In these times of increased awareness of the risks of antimicrobial resistance (AMR), re-evaluating a common disease may help to reduce antimicrobial use (AMU) and enable a move towards more optimal antibiotic use.

**by Dr Jordi Mora, Global Technical Director, ECO Animal Health Ltd.**
**www.ecoanimalhealth.com**

Porcine proliferative enteritis (PPE) or 'ileitis' is an infectious, bacterial disease caused by Lawsonia intracellularis. It is characterised by thickening of the intestinal mucosa (referred to as porcine intestinal adenomatosis or PIA) resulting from intestinal crypt epithelial cell proliferation which leads to reduced nutrient absorption.

PPE is a common and important enteric disease of pigs worldwide and is often endemic on infected units. It is caused by Lawsonia intracellularis and, like most enteric diseases, PPE is multifactorial in nature. For example, important roles are played by the animal's digestive flora, the presence of other pathogens, poorly digestible diets and high feed intake. As a result of these multiple and interacting factors, pigs on affected units may not show clinical signs.

## Two typical forms of the disease: acute and chronic

Acute PPE is seen most commonly in young, adult pigs that have not been previously exposed to Lawsonia intracellularis. They experience overwhelming infection which usually leads to haemorrhagic diarrhoea and sudden death.

Chronic PPE tends to affect pigs at 9 to 16 weeks of age. Affected pigs have diarrhoea without blood and poor growth despite normal feed intake.

This form occurs sporadically within pens where some pigs are affected while others are not. Recovery normally takes place approximately one month after the first clinical signs are seen.

**Fig. 1. Normal pig intestinal mucosa compared to diseased mucosa with PIA, caused by Lawsonia intracellularis (photo: Dr Rubios).**

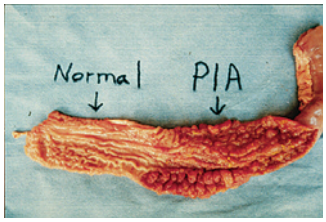
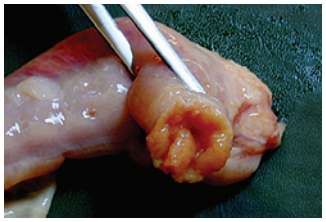



**Fig. 2. Thickened intestinal mucosa typical of PPE (photo: Dr Rubios).**



## Diagnostics

As with all diseases where antibiotics may be required, diagnostics play a key role both in returning pigs to good health and in antibiotic stewardship.

The most commonly used and preferred diagnostic test for PPE is PCR on faeces from untreated pigs experiencing diarrhoea. Faecal samples can be kept frozen before submission to the lab.

An ELISA test is available which enables the veterinarian to better understand the epidemiological PPE situation of a particular production system.

## Vaccines to prevent ileitis

There are two vaccines currently available in many countries: a live vaccine for oral administration and an inactivated vaccine for parenteral administration. Both can effectively control the disease.

Unfortunately, the duration of immunity post-vaccination is sometimes not long enough to protect pigs until slaughter age, as has been reported in some production systems in the USA. These 'vaccine breaks' are a major source of concern since the disease outbreaks require urgent antibiotic treatment, just as pigs are close to slaughter.

Antibiotic choice in this case is limited to those with very short withdrawal periods.

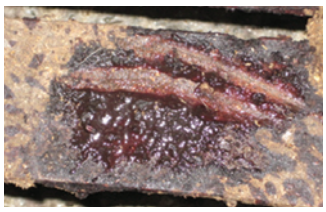


**Fig. 3. Both non-bloody (image on the left) and haemorrhagic or bloody (image on the right) diarrhoea may be seen with PPE (photo: Dr Rubios).**

## Antibiotic choices for the treatment of ileitis

Lawsonia intracellularis is very susceptible to macrolides, tetracyclines and pleuromutilins administered in either feed or water.

A unique challenge with this disease takes place when repeated batches of pigs develop ileitis. As there is no batch-to-batch consistency as to when ileitis will develop, ileitis occurrence cannot be predicted based on the timing of its occurrence in previous batches.

A common practice to overcome this challenge is to start treatment with an appropriate antibiotic via water when approximately 10% of pigs in a room show clinical signs of disease.

This ensures both the prompt resolution of the disease and that healthy pen-mates are exposed to and subsequently develop immunity to Lawsonia intracellularis.

The temptation to administer metaphylactic antibiotic treatments at a given time rather than when a certain percentage of pigs are showing clinical signs will generally result in antibiotics being given too early, when pigs have not yet had the time to develop immunity.

This can lead to PPE outbreak a few weeks later, with an increased risk of developing the acute form of PPE which will lead to increased mortality.

## Conclusion

PPE remains a costly and challenging disease for pig producers around the world. Both endemic disease resulting in reduced performance over time and acute disease with high mortality and antibiotic treatment challenges, make careful management imperative.

Diagnosing Lawsonia intracellularis in cases of diarrhoea or poor performance helps to ensure that the right antibiotic is chosen.

This along with good vaccination protocols are key to reducing AMU and to the enhancement of antibiotic stewardship. Carefully timing antibiotic treatments will ultimately ensure that fewer animals become ill, requiring less AMU in the long term. ■

**Fig. 4. Healthy pigs free from PPE will perform better and experience higher welfare (photo: Dr Rubios).**