

# European Experience with Post-weaning multi-systemic wasting syndrome (PWMS) and Porcine dermatitis and nephropathy syndrome (PDNS)

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## Introduction

Two distinct, but causally related diseases of pigs have emerged in most commercial pig populations in the World in the last 15 years or so. Porcine multi-systemic wasting syndrome (PMWS) is characterised by the acute onset of ill-thrift, weight loss and pallor in pigs aged typically between 6 and 14 weeks. The morbidity rate varies between 5 and 30% and the mortality rate of affected pigs is usually in excess of 80%.<sup>1,2,3,4,5,6</sup>

Porcine dermatitis and nephropathy syndrome (PDNS)<sup>7,8,9,10,11</sup> is characterised by the acute onset of a rash in pigs aged typically between 12 and 22 weeks involving the hindquarters, especially the perineum and scrotum, though it may also be evident elsewhere on the body. It is often accompanied by swelling of the limbs and joints. Practical experience suggests that PDNS may be stress-induced. The morbidity rate varies from sporadic individual cases to outbreaks involving up to 15% of the susceptible population. Without intervention, the mortality rate of affected pigs is usually greater than 70%.

The aetiology of the two clinical entities is not fully understood, but from evidence so far it would appear that infection with porcine circovirus type 2 (PCV-2) is necessary for the expression of disease.<sup>12,13,14,15,16,17,18,19</sup> According to several serological studies, it is likely that PCV-2 is extremely widespread in pig populations and, furthermore, has been so for many years.<sup>20,21,22,23,24</sup> It is not known why PMWS and PDNS have emerged as serious clinical entities in recent years but because experimental infection with PCV-2 alone in conventional pigs is not sufficient to cause PMWS<sup>25,26,27,28</sup> and because not all pigs in affected herds develop PMWS or PDNS, it is thought that factors in addition to PCV-2 are necessary for the expression of disease. Experimentally, these have been shown to be co-infection with porcine reproductive and respiratory syndrome virus (PRRSV)<sup>29,30,31</sup> or porcine parvovirus (PPV)<sup>25,26,27,31</sup> and immune modulation.<sup>32,33</sup> Clinical experience in the field suggests that genetics, age of breeding sows, management practices and possibly the increasing use of vaccines<sup>34</sup> in young growing pigs all play a part. It is thought by some that activation of the immune system at a critical time by vaccination is the pivotal event in the emergence of PMWS in pigs infected with PCV-2.<sup>32</sup> However, a more pragmatic approach would be that vaccination is no more likely to precipitate PMWS than any other immuno-stimulatory event that takes place in the early growing phase of the pig. Clinical PMWS can be mitigated by effective control of concomitant infection, which often includes appropriate vaccination, but there have been questions raised by clinicians about vaccination because of

conflicting scientific opinions on the role of immune modulation or stimulation in the expression of PMWS.

## Further Information on European Experience

The following areas are discussed during the presentation (PowerPoint file):

- The Incidence of PMWS/PDNS in the UK
- Aspects of epidemiology
- Implicated risk factors
- Clinical experience and characteristics
- Thoughts on transmission routes
- Prevention and control
- Case histories
- Immune stimulation and vaccination
- Conclusions
- Unanswered questions

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