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PMWS Development in Pigs from Affected Farms in Spain and Denmark

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Abstract

Postweaning multisystemic wasting syndrome (PMWS) is a worldwide spread condition that affects pigs in nursery and/or fattening units, and is considered to have a severe economic impact on swine production. The main clinical sign of PMWS is wasting, but can also include pallor of the skin, icterus, respiratory distress and diarrhoea. The main essential infectious agent for PMWS development is porcine circovirus type 2 (PCV2), but the exact cause of PMWS is still unclear. PCV2 is present in most pig herds, but the occurrence of PMWS is more sporadic, and it is been difficult to reproduce PMWS by inoculating PCV2 alone. However, studies where co-infections have been applied have been more successful. Based on this, we modeled PMWS development based on longitudinal data on antibodies and PMWS status from herds in Denmark and Spain, where presence of a range of pathogens were considered as explanatory variables in the form of maternal immunity and the occurrence of seroconversion against the considered pathogens. However, maternal immunity could not be measured from mother animals due to cross fostering, no time points for seroconversion was available, and no case/control status could be assigned as PMWS do not have an 'infectious period' after which animals may be assigned control status. The talk will concentrate on the framework in which this was handled, which may be translated to similar settings for similar studies. We found that seroconversion towards PCV2 and *Lawsonia intracellularis* had a significant impact on PMWS in the Danish data, but it appears that the effect is positive, in the sense that seroconverted animals were less likely to develop PMWS. A number of maternal immunities also significantly affected PMWS development. Furthermore it was uncovered that most of these effects would not have been detected if pathogens were considered by themselves and not simultaneously.

Biography

Anders Stockmarr, male, statistician and probabilist, graduated from University of Copenhagen, Denmark, in 1996. He has worked for Departments of Biostatistics and Forensic Genetics at the University of Copenhagen 1996-1999, Risoe National Laboratory 1999-2001, DSI Institute for Health Services Research 2001-2002, and 2003-present at the Technical University of Denmark. In 2003-2011 he was working with the National Veterinary Institute within the Technical University of Denmark, from 2011-present at the Department of Informatics. His work at University of Copenhagen has focused on stochastic processes and applied biostatistics, with contributions to forensic genetics. At Risoe National Laboratory, he worked with disease spread with focus on fungal diseases. At the National Veterinary Laboratory he has worked with vaccinology and immunology, together with a range of areas of biostatistical and epidemiological aspects of animal diseases. Together with new areas, he continues this work the Department of Informatics.