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## Research and Scientific Reports Update

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*BY: Noel T. Kavanagh, M.V.B., D.P.M., M.B.A.E., Dipl ECPHM., F.R.C.V.S.*

### Putting a price on PMWS P. Alarcon, J. Rushton, B. Wieland,

Preventive Veterinary Medicine (2013) 110, 88-102, doi: 10.1016/j.prevetmed.2013.02.010

An epidemiological disease model was built to simulate the disease events occurring on a farm at different PMWS severity levels. Economic costs and benefits were calculated separately for the different categories of infected, diseased and healthy pigs. Results from the economic analysis at pig level were combined with the disease model's estimates of the proportion of different pigs produced at different severity scores to assess the cost of PMWS and subclinical disease at a farm level, and these were then extrapolated to estimate costs nationally. The net profit for each healthy pig that was sold was £19.20. The mean loss to the farmer if the pig was carrying the disease but had no clinical signs was £8, but up to £84 if the infected pig died. The results indicate the extent of the economic impact of these diseases on farms with different severities of PMWS. It is suggested that this model could be used to assess the efficiency of different control measures and to provide a decision support tool to farmers and policymakers.

***Nk comment: This report highlights the fact that, in addition to losses due to clinical PMWS, significant losses also occur due to subclinical disease.***

### Plans to make BVD testing compulsory in Northern Ireland

PLANS to introduce legislation requiring cattle keepers in Northern Ireland to test their animals for bovine viral diarrhoea (BVD) have been announced by Michelle O'Neill, the minister for agriculture and rural development in Northern Ireland.

'This legislation will put herd keepers in the north on an equal footing to those in the south of Ireland and in Scotland, as well as other EU member states, where eradication schemes for BVD are already well under way,' she said. 'This is of particular importance given the recent announcements in the United States and Singapore to open their markets to beef exports.' 'With Scotland and Northern Ireland now engaged in compulsory BVD eradication schemes we hope the rest of the UK will look to learn from these examples.'

***NK comment: This is a very positive development. It could prove very important in the future in relation to beef exports in addition to the animal health and production benefits of improved herd health status.***

## **African swine fever virus: on the move and dangerous. Chris Oura, BVetMed, MSc, PhD, MRCVS**

Since its introduction into Georgia, ASFV has spread rapidly into vast areas of western and southern Russia, where it is currently circulating out of control in domestic and wild pig populations ([Gogin and others 2013](#)). This year, the virus has spread to the edges of Europe, with outbreaks reported in both the Ukraine and Belarus, putting the very large pig populations of Eastern Europe at risk. It is frightening even to contemplate the scenario of this virus heading eastwards into China, which is the world's largest pork producer, producing around half of the world's pork.

***NK comment: African Swine Fever continues to move. It is vital that herd owners maintain high standards of biosecurity and vigilance, not only in mainland Europe, but also in the UK and Ireland.***

## **Study highlights differences in animal and human *Salmonella* populations**

CONTRARY to popular belief, animal populations are unlikely to be the main source of antibiotic resistant *Salmonella* in people, new research suggests.

The study, reported in *Science* and conducted by researchers from 13 institutions worldwide, analysed drug-resistant genes from over 370 *Salmonella* samples collected over a 22-year period and found that bacterial populations in humans and animals living side by side differed. The team sequenced DNA from bacteria taken from both humans and animals, mainly in Scotland, infected with *Salmonella* Typhimurium DT104. Comparisons between the genomic DNA showed that the bacterial populations infecting people and animals were distinguishable. They also noted that the number of cross-species infections was much lower than would be expected, indicating that these events are rare.

'Our data provide a very simple message, challenging the established view that local animals are the predominant source of *Salmonella* infections in Scotland,' said Nicholas Thomson, of the Wellcome Trust Sanger Institute, senior author on the paper.

The paper suggests that, contradictory to the established view of drug-resistant strains crossing from animals to humans, *Salmonella* is largely maintained within separate human and animal populations, with limited crossover. The authors also found that the human-infecting bacteria had more varied combinations of drug resistance compared to the *Salmonella* found in animals, suggesting that a combination of imported foods and international travel could be causing the spread of antimicrobial-resistant strains.

'This finding in no way undermines the importance of prudent antimicrobial use in all species,' said Stuart Reid, of the Royal Veterinary College, another author on the paper. 'But our study does demonstrate that greater effort needs to be focused on understanding the natural history of pathogens and on identifying the major sources of resistance in our global ecosystems.'

■ Mather, A. E. and others (2013) Distinguishable epidemics of multidrug *Salmonella* Typhimurium DT104 in different hosts. *Science Express*, published online September 12, 2013.

***NK comment: New gene sequencing techniques have created new opportunities to conduct more detailed investigations into the association between human and animal *Salmonella* infections.***