International Pig Topics

Pighealth BYTES

Your own reference source on pig health

Number: 145

Swine influenza III

Transmission of influenza in pigs

Influenza A virus has a very short incubation period in pigs and the period of virus shedding is very short. The natural route for transmission is initially into the nasal passages and then down the trachea, bronchi and bronchioles to the lungs.

Epidemiology

Under natural conditions in the field transmission of swine influenza virus can occur all year round.

However, there are various risk factors that can favour virus transmission and the continuous circulation of one or more swine influenza A viruses on a farm or within a farming system. Two well known ones are large herd sizes and large numbers of pigs per pen.

Another is the operation of a farrow to finish system. In this type of farm and other continuous flow systems where young pigs are being introduced to older ones in a house, potentially susceptible pigs are being continually introduced to infection.

The use of fall back pens is another risk factor. All in; all out systems are associated with a lower risk. Low temperatures and low humidity also favour transmission. To date virus has been detected I the air at least 2.1km downwind of an infected farm.

Another risk factor is the swine vaccine's efficacy for the field/endemic strain vaccinally derived maternal antibodies typically wane between 8 and 12 weeks and this is the age at which virus is most likely to be detected during surveillance.

In addition to risk factors, other factors that come into play are the regional variations that occur and the virus movements that accompany pig movements. Regional variations in antigenic shift and drift are more prominent in areas where pig density and movements are low.

The continuous importation avian influenza A viruses into the Midwest of the USA has played a key role in the diversity of swine influenza A viruses seen in that region as a consequence of multiple distinct genetic variants arising from genetic reassortment. These include seven genetically and antigenically distinct haemagglutinin type – H1α, H1β, H1γ, H161, H162, H1pdm09 and H3 cluster IV.

Zoonosis plays a key role in the epidemiology and evolution of influenza A viruses in pigs. Human to pig transmission has been known to occur and influenza viruses with an avian origin have been known to have been introduced to confined pigs. However, these are more likely to be found in outdoor pigs or pigs on multispecies farms. Probably the greatest risk associated with these zoonotic viruses is that they provide material for reassortment.