International Pig Topics'
Pighealth BYTES
YOUR OWN REFERENCE SOURCE ON PIG HEALTH

36 – Influenza II

Epidemiology

As well as infecting pigs and man, swine influenza viruses can infect wild boar, turkeys and, sometimes, wild waterfowl. Pigs can be infected by a wide range of influenza subtypes. For example, in recent years H1N1, H3N2, H3N3, H5N1, H9N2 and H4N6 have been isolated from pigs in Asia and Canada. In general terms, avian influenza viruses find pigs to be dead end hosts. For an avian influenza virus to epidemiologically progress, mutate or reassort with swine adapted influenza viruses need to replicate efficiently in pigs.

Human influenza viruses have occasionally been isolated from pigs and transmission of human viruses between pigs requires them to adapt to their new host.

Antigenic drift is slower in porcine influenza virus than it is in human ones. For example, the current European swine H3N2 is related to the human virus of the 1970s and 1980s, while the human form has significantly drifted away from it precursors.

Transmission

In the northern hemisphere outbreaks of porcine influenza often occurred in the autumn but, as more and more pigs were housed, this became less apparent.

Influenza viruses are often introduced into new herds with new stock and primary spread is pig to pig by nasopharyngeal exposure. There can be over 10 million virus particles in 1ml of nasal secretion. Aerosol transmission has been demonstrated for human and equine influenza viruses and is a likely route of transmission in highly populated pig areas.

In farrow to finish farms, where there is a steady supply of young susceptible piglets with waning maternal immunity, the influenza virus seems to persistently cycle on the farm.

International geography

North America – Classical H1N1 dominated from the 1930s to the 1990s. There was a dramatic change in 1998 with the emergence of two different strains of H3N2, of which one – a triple reassortant – spread widely across North America and evolved into four distinct phylogenetic clades.

Europe – In 1979 an H1N1 moved into pigs from wild ducks and has persisted there until today. European swine H3N2 viruses are derived from descendants of the 1968 'Hong Kong flu'. In the mid-1990s H1N2 became established.

Asia – More complicated as H3N2 influenza viruses have been regularly transmitted from man to pigs. Both North American and European influenza viruses have been introduced including H1N1. Big variations in dominant viral type between different parts of Asia. In the last 10 years H1N1, H3N2 and H9N2 have regularly spread from other species to pigs.

Pandemic – Following the 2009 H1N1 pandemic in man, the H1N1 virus was isolated from pigs in many parts of the world.