



*OFFLU virtual SIV group
meeting
9 December 2020*

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CSIRO Australian Centre for Disease Preparedness

IAV-Sw update for Australia



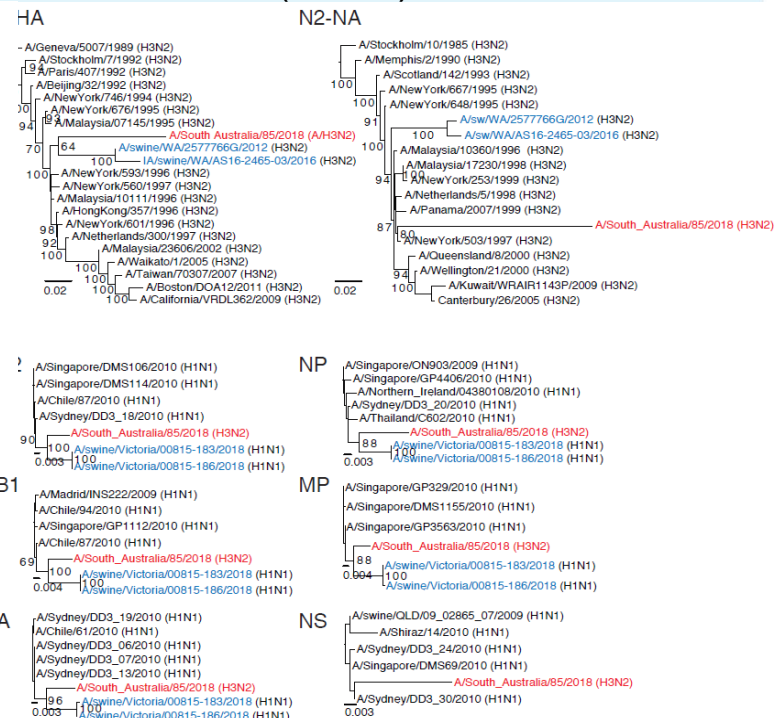
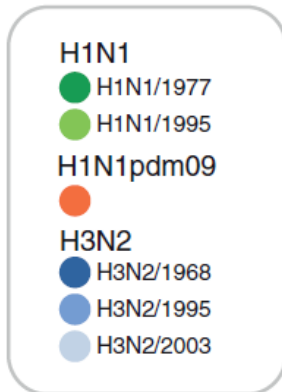
Surveillance update - Australia

- Australia conducts only syndromic (PRDC) surveillance for influenza in domestic swine; samples go to ACDP.
- Novel reassorted H1N2 and H3N2 influenza viruses detected in Australian swine since 2012 to present, containing old human IAV genes.
- In 2018, a 15-year-old female adolescent in Australia was infected with swine influenza A(H3N2) variant virus. The virus contained HA and NA genes derived from 1990s-like human seasonal viruses and internal protein genes from influenza A(H1N1)pdm09 virus, highlighting the potential zoonotic risk that swine influenza A virus poses in Australia.

Australia A(H3N2)v 2018



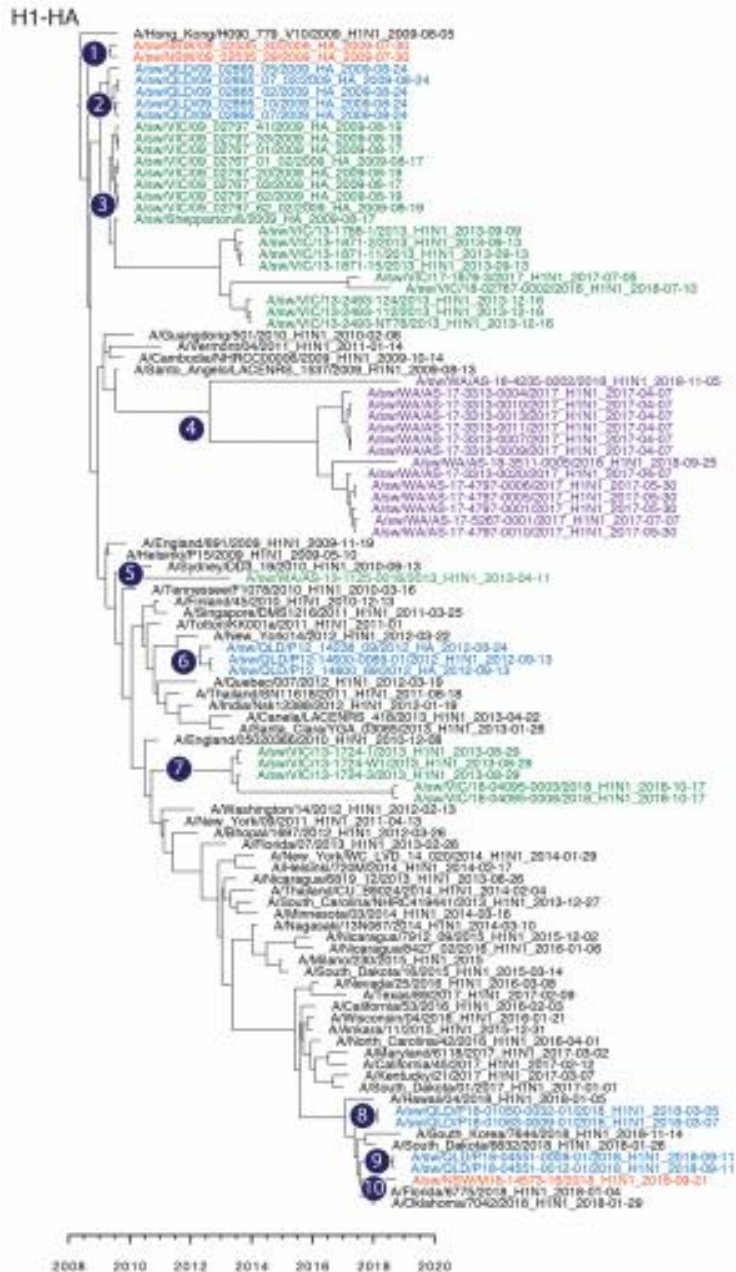
A/sw/WA/2577766G/2012	H3N2
A/sw/WA/2577899R/2012	H1N2
A/sw/WA/AS16-2465-03/2016	H3N2
A/sw/WA/AS12-2111-01/2012	H1N2
A/sw/WA/2577896X/2012	H1N2
A/sw/WA/AS16-3457-09/2016	H1N2
A/sw/QLD/P12-13921-24/2012	H1N2
A/sw/QLD/P12-14238-07/2012	H1N2
A/sw/QLD/P12-14238-09/2012	H1N2
A/sw/QLD/P12-14600-69/2012	H1N1



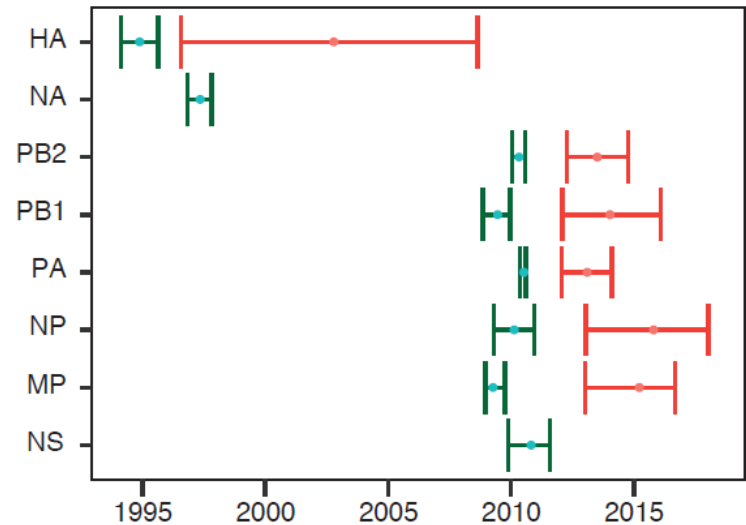
H1 lineages:

- clade 1A.3.3.2
- clade 1B.2
- Other-human

pH1N1 dynamics in Australia



e.g. A(H3N2)/18 divergence from human source



Ongoing Research:

Improving HI assessments of H1 and H3 antigenic relationships and diversity

References:

Deng YM et. al. Locally Acquired Human Infection with Swine-Origin Influenza A(H3N2) Variant Virus, Australia, 2018. *Emerg. Infect. Dis.* 2020 Jan;26(1):143-147. doi: 10.3201/eid2601.191144.

Smith DW et. al. Respiratory Illness in a Piggery Associated with the First Identified Outbreak of Swine Influenza in Australia: Assessing the Risk to Human Health and Zoonotic Potential. *Trop. Med. Infect. Dis.* 2019 Jun 25;4(2):96. doi: 10.3390/tropicalmed4020096

Wong FYK et. al, Divergent Human-Origin Influenza Viruses Detected in Australian Swine Populations. *J. Virol.* 2018 Jul 31;92(16):e00316-18. doi: 10.1128/JVI.00316-18

Thank You

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