Conclusions and recommendations from the 2005 meeting of the Expert Surveillance Panel on Equine Influenza Vaccines

These recommendations were made following a meeting, which was held on 1 April 2005, of the Expert Surveillance Panel on Equine Influenza Vaccines and relate to the composition of vaccines for 2005 and beyond.

Influenza activity in 2004

Outbreaks of equine influenza in Argentina, Canada, Croatia, Denmark, France, Germany, Greece, Hungary, Ireland, Italy, Sweden, the UK and the USA were reported during 2004. The outbreak that occurred during February and March in France was widespread and affected vaccinated as well as unvaccinated horses.

All influenza activity was associated with H3N8 viruses. There were no reports of serological or virological evidence of H7N7 (equine-1) subtype viruses circulating in the equine population. Nevertheless, diagnostic laboratories should continue serological and virological monitoring and, when using polymerase chain reaction (PCR) for rapid diagnosis, should ensure that primers specific for H7N7 virus as well as H3N8 virus are used.

Characteristics of recent isolates

All viruses characterised antigenically and/or genetically from Europe and North America during 2004 belonged to the ‘American’ lineage. In haemagglutination inhibition (HI) tests using post-infection ferret antisera, all viruses isolated in Europe were most closely related to the A/eq/Newmarket/5/2003 reference strain, whereas viruses isolated in South Africa and the USA were more closely related to A/eq/South Africa/4/2003. Antigenic differences between the two geographically separate groups of viruses were, however, not consistently observed. The HA1 sequences of American lineage viruses isolated since 2003 in America, Europe and South Africa all fall within a single phylogenetic sub-group, previously referred to as the ‘Florida’ lineage (Lai et al., 2001; 2004). The viruses isolated in America since 2003 (represented by A/eq/South Africa/4/2003 and A/eq/Ohio/2003) are characterised by two further amino acid changes in antigenic sites compared with the viruses isolated in Europe; these additional changes appear to contribute to greater antigenic drift from the A/eq/Newmarket/1/93-like viruses currently included in vaccines.

Recommendations for the composition of equine influenza vaccines

During the period January 2003 to April 2004, H3N8 viruses of the ‘American’ lineage caused widespread outbreaks in Europe, with well-vaccinated horses frequently affected. These viruses, together with those responsible for recent outbreaks in South Africa and circulating in North America were antigenically closely related to the currently recommended vaccine strains – A/eq/South Africa/4/2003-like. No viruses belonging to the ‘European’ lineage were characterised during 2004. The last isolation of a virus belonging to the ‘European’ lineage was made in 2003. Nonetheless, the recommendation remains that a
European lineage virus be included in vaccines, and monitoring for the circulation of European lineage viruses will continue.

It is recommended that vaccines contain the following:

- an A/eq/South Africa/4/2003 (H3N8)-like virus (American lineage)\(^1\)
- an A/eq/Newmarket/2/93 (H3N8)-like virus (European lineage)\(^2\)

**Reference reagents**

Reference reagents specific for the recommended European lineage vaccine strains are available for standardisation of vaccine content by single radial diffusion (SRD) assay and can be obtained from the National Institute for Biological Standards and Control (NIBSC). Reagents for the new recommendation will be prepared at the earliest opportunity.

Three equine influenza horse antisera (anti-A/eq/Newmarket/77 [H7N7], anti-A/eq/Newmarket/1/93 [H3N8] and anti-A/eq/Newmarket/2/93 [H3N8]) are available as European Pharmacopoeia Biological Reference Preparations (EP BRPs) for serological testing of equine influenza vaccines by the single radial haemolysis assay. These antisera are also available from the OIE Reference Laboratory in Newmarket (UK) for use as primary standards in diagnostic serological testing. Pooled equine serum obtained post infection with A/eq/South Africa/4/2003 (H3N8) virus is currently the subject of an international collaborative study to establish this serum as an EP BRP/OIE primary standard to supersede the anti-A/eq/Newmarket/1/93 (H3N8) serum.

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<tr>
<th>SRD reference reagents</th>
<th>EP BRPs for serological testing of equine influenza vaccines</th>
<th>OIE primary standards for diagnostic serological testing</th>
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<tbody>
<tr>
<td>NIBSC, Blanche Lane, South Mimms, Potters Bar, Herts, EN6 3QG, UK Fax: +44 (0)1707 64.67.30 e-mail: <a href="mailto:enquiries@nibsc.ac.uk">enquiries@nibsc.ac.uk</a></td>
<td>European Directorate for the Quality of Medicines, BP 907, F-67029 Strasbourg Cedex, France Website: <a href="http://www.pheur.org">http://www.pheur.org</a></td>
<td>Animal Health Trust, Lanwades Park, Kentford, Newmarket, Suffolk, CB8 7UU, UK Fax: +44 (0)8700 50.24.61 e-mail: <a href="mailto:info@aht.org.uk">info@aht.org.uk</a></td>
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**References:**


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2. A/eq/Suffolk/89 and A/eq/Borlänge/91, currently used vaccine strains, continue to be acceptable.