

Diseases once associated with foreign climes are now, as a result of global warming, more likely to pose a threat to the UK. The UK equine population is vulnerable to viruses that no one ever believed would be seen on our shores. Transmitted by insects, diseases such as West Nile Virus, Swamp Fever (Equine Infectious Anaemia) and African Horse Sickness could, if they came to the UK, devastate the equestrian industry with all activities suspended for an indeterminate period.

West Nile Virus (a notifiable disease)

About the disease

1) What is West Nile Virus (WNV)?

A viral infection of birds, horses and humans. It can cause encephalitis (inflammation of the brain) or meningitis (inflammation of the lining of the brain and spinal cord). Humans and horses are dead-end hosts for the disease and do not contribute to its transmission cycle.

2) Where does it occur?

The virus is commonly found in Africa, West and Central Asia, the Middle East, parts of Europe and North America. Recent outbreaks have occurred in Morocco (1996), Romania (1996), Italy (1998), Russia (1999), the South of France (2000) and Italy (2008). The virus appeared for the first time in the USA in 1999 and has spread throughout much of the country. WNV is now considered to be endemic in the USA.

Research by the Natural Environment Research Council found antibodies against the virus present in birds in Great Britain, suggesting past or present infection from WNV. Infection from WNV has never been identified in horses or humans in Great Britain.

3) How does the disease spread?

WNV can be transmitted to humans and animals via the bite of an infected mosquito. The mosquito vectors primarily involved are Culex species which are known to occur in some parts of the UK. Mosquitoes become infected when they feed on infected birds, which may circulate the virus in their blood for a few days. The virus eventually gets into the mosquito's salivary glands. During later blood meals (when mosquitoes bite), the virus may be injected into humans and animals, where it can multiply and possibly cause illness. Ticks are also infected in Asia and Africa but their role in transmission is unknown.

Migrating birds are the most likely mechanism of the infection being introduced into the UK. Humans, horses and other animal species are believed to be dead-end hosts, i.e. there is no spread from them to other people or animals. It is possible that a recently infected horse or person, with virus in their blood stream, could be bitten by a mosquito. However, the risk of this is thought to be remote.

4) Can disease be transmitted by food or contact with infected animals / humans?

The main route of transmission of WNV is through mosquitoes and the risk of humans acquiring WNV through consumption of food is extremely low. The virus is destroyed by standard cooking methods and pasteurisation. There have been no reports of the virus infecting people following consumption of meat and milk from infected animals. There is no evidence of person-to-person transmission or that a person can get the virus from handling live or dead infected birds.

5) Why is there concern about the disease?

WNV is a zoonosis i.e. a disease which can be transmitted between animals and humans via the bite of an infected mosquito. Global warming and consequential changes in the migratory patterns of certain bird species increases the risk of this disease arriving in the United Kingdom.

6) How does it affect equines?

The virus interferes with the normal functioning of the central nervous system and causes inflammation of the brain.

7) What are the main characteristics of the disease?

The horse seems the most susceptible to infection. Most cases are sub-clinical with the horse showing no obvious signs of disease but becoming seropositive (i.e. positive blood test for antibodies to the virus). The incubation period is 5-15 days and affected animals develop a fever and often encephalitis with nervous signs. Mortality of animals showing signs of disease in the USA is about 35%.

8) Does WNV pose any risk to human health?

Yes. Following transmission by an infected mosquito, West Nile Virus multiplies in the person's blood system and crosses the blood-brain barrier to reach the brain. The virus interferes with normal central nervous system functioning and causes inflammation of brain tissue.

9) How severe is the disease?

Most infected people either show no symptoms or develop only a mild disease with a raised temperature. However, about 1% of people with signs of illness develop severe and potentially fatal neurological disease.

In the horse population around 10% of infected horses develop clinical signs. These include depression, raised temperature, anxiety, ataxia (staggering), flaccid lower lip, temporary or permanent paralysis or sudden death.

10) Are other animals affected?

Birds are the main carrier and most remain apparently unaffected. However, some species are more susceptible to disease, for example, corvids (crow family). Mass die-offs can occur in these species. Other animals that can be infected are cats, bats, squirrels, rabbits and dogs (rarely). The strain present in Europe is different to that in the USA and has a lower pathogenicity, therefore avian and mammal species may be asymptomatic.

Poultry can be infected and have been used in the USA as "sentinels" to detect infection in areas thought to be at risk. They do not usually develop disease. WNV is primarily an infection of birds. However, a range of other animal species such as goats and sheep can be infected although these species only develop low levels of virus. To date there have been no reports that cattle have been affected by the virus.

11) Can people, animal feed, bedding or vehicles spread the disease?

No. An insect vector is needed.

12) If West Nile Virus is circulating in the bird or mosquito population am either I or my horse likely to become sick?

It is very unlikely.. Even in areas where the virus is circulating, very few mosquitoes are infected with the virus. Even if the mosquito is infected the chances of becoming severely ill from a single bite is extremely small.

13) Can WNV be confused with other diseases?

Several other viruses can cause very similar signs of disease. These include a group of related viruses known together as 'equine encephalitides'. These include Eastern equine encephalomyelitis (EEE), Venezuelan equine encephalomyelitis (VEE) and Western equine encephalomyelitis (WEE). Other viruses such as Japanese encephalitis B virus (JEV), Equine herpes virus (EHV 1), and Borna disease virus also have comparable symptoms. Equine protozoal myelitis and rabies may also appear very similar.

14) Could the disease occur in the UK?

Yes. Migratory wild birds could possibly introduce the virus and may provide the opportunity of spread to horses, other wild birds, fowls or people if competent vectors (i.e. insect species able to transmit the virus) are present. Movement of a horse from an endemic area may provide an 'index case', but further spread from a horse is very unlikely. Movement of an infected bird from an endemic country could provide a source of virus for further spread, but only if sufficient competent vectors are present.

15) If I suspect I have a horse that could be showing symptoms of WNV what should I do?

WNV is a notifiable disease. If you suspect a notifiable disease, you must notify the Divisional Veterinary Manager of your local Animal Health Office immediately.

<http://www.defra.gov.uk/animalhealth/about-us/contact-us/search/index.asp>

16) Could the disease become endemic?

Evidence so far is that the Culex species of Mosquito is the primary vector. Outbreaks outside the endemic area have ended after a period of time. The Culex species of mosquito is known to be present in parts of the UK. However, under current UK conditions any spread would initially be slow. Spread would be seasonal and related to weather and environmental conditions.

Restrictions

17) If there was an outbreak, how would it be controlled?

When notifiable disease is suspected restrictions are placed on the premises as its symptoms are similar to those of other equine encephalitides (see Q13) that require more stringent disease control measures. Restrictions include the prohibition of movements on and off the holding (this would also apply to facilities such as stables etc). Once WNV has been confirmed, restrictions will be lifted, subject to the completion of the epidemiological investigation, as horses are considered a 'dead-end' host for this disease (they are not thought to develop enough circulating virus to infect further mosquitoes which bite them). When WNV is confirmed vector controls would be introduced to reduce potential contact. Vector control would include the elimination of breeding sites of mosquitoes (stagnant water, rain butts etc) through the possible use of insecticides. Vector avoidance would include keeping animals away from vector sites, applying insect repellent and housing susceptible animals in insect proofed accommodation when mosquitoes are active. There is no requirement for the statutory slaughter of horses.

Further information on European regulations with regards equine diseases and intra-community trade can be found at:

http://ec.europa.eu/food/animal/liveanimals/equine/index_en.print.htm

18) How can I protect my horses from mosquitoes?

There can be very little done to control mosquitoes. Widespread use of insecticide would not remove all risk from mosquitoes and could have disastrous effects on the environment. Horses can be best protected through the use of insect repellents and keeping them indoors in an insect proofed building during dawn and dusk when mosquitoes are active.

19) Are other members of the horse family such as Donkeys and Mules at risk?

Yes.

20) Could I continue to compete in events with my horse?

Yes. An outbreak of WNV would not impact upon equine events as horses are considered 'dead end' hosts (see Q17). However, confirmation of other exotic equine diseases such as African Horse Sickness and equine encephalitides (see Q13) would have a serious impact. Movements would be restricted, horse racing, shows and all forms of equestrian sport would be affected.

21) Would there be compensation for affected animals?

Only in the case of animals that had to be compulsorily slaughtered but in the case of WNV there is no statutory requirement to slaughter horses.

Treatment and vaccination

22) What treatment is available?

Horses would not have to be destroyed just because they had been infected with WNV. Data suggests that most horses recover from the infection however, some might need, in severe cases, to be humanely destroyed. Treatment would need to

be supportive and consistent with standard veterinary practices for animals infected with a viral agent.

23) If a horse recovers from WNV are they immune from further attack?

Both people and horses are assumed to develop a natural immunity against any future infection by the virus, however, it may wane in later years.

24) Can horses be vaccinated against the disease?

A vaccine against West Nile Virus produced by Fort Dodge, Duvaxyn WNV, has recently received a license for use in Europe. Vaccination is used as a control measure in the United States of America where the disease is considered endemic.

25) Could other vaccines such as the Bluetongue vaccine give any protection to horses?

No, the immunity provided by the vaccine is only for the particular strain of Bluetongue. Although WNV is a virus transmitted through a similar vector as Bluetongue, vaccines do not cross protect.

26) Can foals be vaccinated?

In areas where vaccine is used, foals are vaccinated at 6 months of age after immunity from their vaccinated dams has waned.

27) What can I do to protect my horse?

Given our experience with Bluetongue, vigilance is always necessary to pick up the first signs of new emerging disease in areas where they have not occurred previously.