

# Exotic diseases: protocols and vigilance key to shutting them out

**A**n exotic disease is an infectious disease that normally doesn't occur in the particular country or area under discussion – either it has never occurred there, or it has been eradicated. By comparison, an endemic disease does or can be expected to occur in that area or country. For example, equine influenza (EI) is endemic to the UK (as the ongoing situation demonstrates) but Equine Infectious Anaemia (EIA) is an exotic disease. In Australia, EI is considered exotic as, apart from the large outbreak in 2007, Australia was and is now free of the disease.

A notifiable disease is one which, by law, must be reported to government authorities, even if it is only suspected. This allows investigation, movement restrictions and possibly restrictions on other activities such as shows or sales etc to be imposed. With some notifiable diseases, compulsory destruction of infected animals and/or in-contacts is required and any financial compensation might not match the value of the animals lost. Some infectious diseases are also zoonotic, which means they can pass between humans and animals and might cause disease in humans, too.

## Exotic diseases must be on our radar

It is important to appreciate that it is not just the physical effects of the disease on affected animals or local activities that might impact on the industry. Exports to certain countries might also be banned until any outbreak of notifiable disease is controlled or eradicated. Existing export certificates require confirmation from the UK government that certain diseases have not occurred within a certain period of time before export.

With increasing movement of horses between a growing number of countries, the risk of the introduction of disease also increases. Many exotic diseases have clinical signs which are similar to our endemic diseases and also some commonly seen non-infectious conditions. Being aware of the potential for an exotic disease to appear will assist in rapid diagnosis and, hopefully, successful control.



Fig 1 Eye showing jaundice (yellowing) of sclera

## Where insects may have a role...

Climate change, with the resultant increase in temperatures and unsettled weather patterns, could potentially provide conditions in the UK which will support populations of disease-carrying insects, including those not previously found here. There are a few vector-borne diseases we must specifically be on the lookout for.

## African Horse Sickness (AHS)

AHS is one of the most severe viral diseases affecting horses. It is caused by a virus similar to that which causes Bluetongue in ruminants and both are transmitted by biting midges. In 2007 there was an outbreak of Bluetongue in ruminants in eastern England believed to have been the result of a 'cloud' of virus-carrying midges being blown over from Europe. It is possible that AHS virus might also arrive in this way.

In the UK, the mortality rate in affected areas would be close to 100% as our population of horses has never

previously been exposed to the infection. In countries where it is endemic (for example, parts of southern Africa) there are different forms of the disease but mortality rates still reach 70 to 95%. Symptoms include some or all of the following: fever, swelling of the eyelids, face and/or brisket, difficulty breathing, spasmodic cough and frothy fluid oozing from nostrils. Midges feeding on an infected horse pick up the virus and carry infection to other horses.

Diagnosis is based on clinical signs and paired blood tests looking for development of antibody in animals that survive long enough. There is a commercially available vaccine in certain countries but efficacy is limited because there are several distinct serotypes of the virus. Control includes trying to identify the virus and serotype, isolating and possibly euthanising infected and exposed horses, establishment of control and restriction zones, insect-proof housing and annual vaccination, where available.

## Piroplasmosis

Piroplasmosis (piro) is still considered an exotic disease even though we occasionally find horses that test positive for it here, usually on pre-export testing. These are usually very weak or 'false positives', which can be very difficult to interpret. Repeat testing in a different laboratory or using a different test often yields a negative result.

Occasionally, piro DNA can be found in the blood of asymptomatic horses in the UK. An isolated positive case in a single, recently imported mare with a foal at foot was reported in Ireland in 2019 and the mare was immediately returned to her country of origin.

The causative organism is a protozoan parasite and it needs to have a period of its life cycle undertaken in a tick – the tick then infects a horse when it feeds. Unfortunately, piro can also be transmitted via blood-contaminated needles or by direct blood transfusion.

Symptoms are due to the anaemia that develops and include fever, pale membranes, jaundice weakness (Fig 1), reduced appetite, elevated heart and respiratory rates, production of dark urine, loss of performance, etc.

The presentation of an infected case might be similar in many respects to AHS, so rapid diagnosis – or isolation until diagnosis can be made – is necessary. It can be difficult to find the parasite in blood samples and diagnosis is often based on PCR or serological tests. The UK is at risk through importation of infected horses. These can remain carriers for very long periods and act as a source of infection for suitable ticks. In any imported horse that develops signs of lethargy and anaemia, Piroplasmosis should be considered as one possible cause.

## West Nile Virus

West Nile Virus (WNV) is a significant cause of neurological disease in horses with inflammation of the brain and or surrounding tissues resulting in changes to behaviour or weakness/



Fig 2 Mosquitoes can transmit infection between infected and non-infected animals



Fig 3 Eye demonstrating conjunctivitis

paralysis and possibly death. It falls in a similar bracket as AHS in that there seems to be an increasing chance of us experiencing the disease in the UK due to changes in climate and insect populations. Its main hosts are birds and it is transmitted by mosquitoes (Fig 2). It is endemic in parts of Europe – particularly northern Italy, Hungary and Greece, and there have been outbreaks in Spain and France in recent years. It is also zoonotic and, in a few countries, cases are reported only in humans. Not all infected horses show clinical signs but, fortunately, infected horses do not act as a source of infection for other horses. Neurological signs in horses can range from mild stiffness or dullness to very severe with fever, depression, muscle tremors, circling behaviour, convulsions or rapid death.

These signs are similar to any number of neurological diseases, including poisonings, bacterial meningitis and encephalitis and severe liver disease. Differentiation between these neurological diseases might be possible only through isolation of virus on PCR on post-mortem samples in animals that die or are euthanased. Paired blood tests at least four to seven days apart might be useful in animals with longer or mild illness.

## Equine Infectious Anaemia (EIA)

EIA is spread by blood-feeding insects, such as horse and stable flies. Any bodily fluid from an infected horse can carry the virus and mares can transfer the virus to their foals via the placenta and milk. Contaminated equipment such as syringes, needles and bits can also transmit the disease. A recent outbreak in an equine hospital in Ireland also indicates that direct transfer between horses within a barn can occur. It is believed that the source of this outbreak was unlicensed, contaminated plasma.

The incubation period, i.e. the time between infection and appearance of disease, can be prolonged – up to 45 days – and initial disease might be very mild and easily missed. Other symptoms include fever, conjunctivitis (Fig 3)

weakness, loss of appetite, jaundice and swelling of the limbs and death. In many cases, horses can become clinically normal carriers of the virus and act as a source of infection for others. There is no specific treatment or vaccine available. Diagnosis is based on clinical signs and demonstration of antibodies to the virus in blood tests. One problem with these serological tests is that they can give negative results within the first ten to 14 days after infection. Note that the symptoms are very similar to other diseases which cause anaemia.

## Diseases which can be spread during mating

Equine Viral Arteritis (EVA) probably seems more familiar to us because we test mares for it every breeding season and the HBLB Codes of Practice require that stallions are vaccinated against it and mares are tested before mating.

It is an exotic disease which can be spread by mating, artificial insemination, contact with aborted foetuses, contaminated equipment and through virus present in the breath of infected animals. Symptoms include abortion, conjunctivitis and swelling around the eyes, runny nose, lethargy and swelling of the testicles (Fig 4) or mammary glands. Note that other viral infections might cause limb swelling and something as simple as an allergy might cause swelling around the eyes and lips.

Stallions can be carriers without showing any clinical signs and infect mares they mate with. Similarly, infected mares can infect stallions during mating, but they can also infect their foals during pregnancy and via their milk.

Mares don't remain carriers but might remain positive on a blood test for antibodies to the virus. In such cases we tend to repeat the test at least two weeks later to ensure there is no change in the antibody level in the blood.

The risk to the UK is via an infected >>>

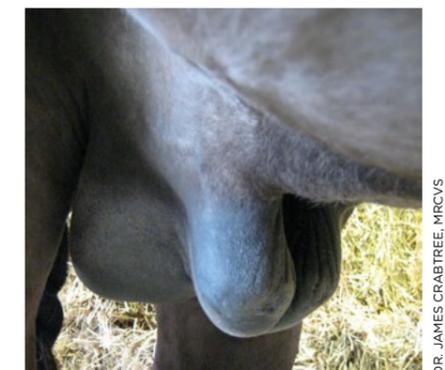


Fig 4 Swollen scrotum and sheath

» horse or contaminated semen. It is important to adhere to the HBLB Codes of Practice to keep this infection out of the thoroughbred population but there is less awareness and uptake of these codes in other breeds and in sports horse breeding, although the situation appears to be improving. Up to the time of writing, in 2019 there have been four positive cases in non-thoroughbred stallions. Apart from telling us that restrictions have been put in place and that investigations are under way, there is no more information about these cases (see <https://www.gov.uk/government/news/equine-viral-arthritis-confirmed-in-devon>).

All imported semen, whether chilled or frozen, must be accompanied by the original or a copy of the import certificate confirming the disease-free status of the stallion at the time of collection.

### Contagious Equine Metritis

Again, all breeders will be familiar with this infection as we test thoroughbred stallions and mares at least once every breeding season. This is a bacterial infection of the genital tract, which

can cause infection of the uterus. This results in discharge from the vulva and infertility. Stallions can be carriers without demonstrating any clinical signs and affected mares can infect stallions at mating. There can also be spread via contaminated articles, such as an artificial vagina used for semen collection.

Diagnosis is based on culture of the organism or PCR on genital swabs. Many mares will spontaneously clear the infection but treatment of infected stallions and mares due to be mated will be necessary. Mating should not resume until three negative genital swabs have been taken. CEM is a notifiable disease and is considered exotic, although there is a chance that it is present in animals that are not undergoing testing. CEM is one of the diseases which requires pre-export testing for a number of countries to which the UK regularly sends horses.

There are obviously many other exotic diseases that could possibly be introduced to the UK. The important message is to be aware that these diseases exist and the combination of increased transportation of horses and

changes to our climate increase the risk of these diseases occurring in the UK. Such incursions could be disastrous for our industry.

There are useful lists and guides to notifiable diseases on the gov.uk website – most of them exotic. The OIE website is also a very useful resource if looking for information about these and other notifiable diseases.

### References and further reading:

<https://equusmagazine.com/blog-equis/eia-outbreak-in-ireland-linked-to-contaminated-plasma>  
<https://www.gov.uk/government/collections/notifiable-diseases-in-animals>  
<http://www.oie.int/animal-health-in-the-world/technical-disease-cards/>  
[https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment\\_data/file/244348/pb13831-ahs-control-strategy-20130923.pdf](https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/244348/pb13831-ahs-control-strategy-20130923.pdf)  
HBLB Codes of Practice <https://codes.hblb.org.uk>  
<https://www.aht.org.uk/disease-surveillance/defra-aht-beva-reports> Vol 15, No 1, January – March 2019



## Feed the best to be the best

### Highclere Castle Horse Feeds

Natural whole feed

Your horse's digestion is the engine room for all success and oats are the fuel.

Support your horses stamina and speed

Our oats have powered winners of over £9m in the last five years.

Horses thrive on our Ryegrass Haylage (200kg bales)

Call 01635 250600 or 07950 010692  
[www.highclerecastlehorsefeeds.co.uk](http://www.highclerecastlehorsefeeds.co.uk)



HIGHCLERE CASTLE HORSE FEEDS

