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Qualitative assessment of the risk of introduction of Equine Infectious Anaemia (EIA) into Great Britain from an EIA endemic area through temporary movement of UK origin horses

Qualitative Risk Assessment

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1 Acknowledgements

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2 Summary

*The likelihood of introducing Equine Infectious Anaemia (EIA) to Great Britain through legal trade in live animals and germplasm from non-endemic countries is currently considered to be **low**, as determined by the low level of trade from countries or regions which report regular disease outbreaks. Other risk pathways are considered a **negligible** risk. Currently, this low risk is further mitigated in the UK by post import checks and tests on horses from at risk regions.*

*We consider that under certain conditions there is a **medium** risk for horses associated with travelling for short periods of time (less than ten days, e.g. for competition purposes) during the main vector active season (April to October) to EIA endemic areas where there are clinically infected horses. At other times of the year, and in the presence of animals with subclinical infection, the risk from these areas remains **low,** unless there is contact with clinically infected horses via other means, e.g. contaminated equipment and needles. In terms of onward disease transmission within the UK, this would depend on specific conditions being present and an infected horse not being destroyed before disease transmission could take place. A horse with clinical signs would be more frequently reported and destroyed, while a horse without clinical signs is less infectious, therefore this risk is considered to be **very low**.*

*Therefore the combined risk level of a UK horse travelling for short periods to an endemic area, becoming infected, returning to the UK and being responsible for onward transmission is **very low**.*

Great Britain has reported three outbreaks of EIA since January 2010, all three cases in horses with Romanian origin or suspected Romanian origin. Two of the cases were detected as a result of enhanced surveillance and post import checks, while the third was as a result of disease investigation. The situation in Europe is considered to have improved in respect to Romania, where special measures have been introduced to improve the export guarantees and certification of horses. However the situation in Italy is such that EIA is now considered endemic, mainly as a consequence of the introduction of infected horses from Romania, movement of horses from infected premises before the 90 day second test and because infected horses were not being culled once tested positive. It has become apparent that the risk assessment needs to be re-addressed on the basis of these new situations.

In particular, the risk of temporary movements (ie movement out of Italy without veterinary certification within ten days of entry) of horses into the UK from

endemic areas is addressed. This risk assessment concludes that the level of risk may continue to be reduced to very low (very rare, but cannot be excluded) if targeted checks and tests are carried out on horses at risk – defined as being those imported from a region or country reporting disease or from non-compliant consignments where their true origin is in doubt.

This risk level is determined based on the expectation that horse owners / keepers in UK and their private veterinary surgeons are aware of the endemic disease situation in Italy, the clinical signs of EIA and the requirement for horse owners to report any suspicion of disease to the relevant authorities.

3 Hazard identification

The hazard is identified as: **Equine Infectious Anaemia virus**

EIA is a viral disease of equidae such as horses, mules and donkeys. The disease is also known as "swamp fever" because it occurs typically in low-lying swampy areas. EIA is a notifiable disease in the EU including the UK.

4 Background

A stated in previous risk assessments (Defra, 2010), we consider that the EIA status of most of the equine population in the EU remains largely unknown and may vary considerably from state to state. This may not be the situation for registered equidae such as pedigree horses, and horses holding an International Equestrian Federation (FEI) passport in a few Member States that follow a voluntary Industry Code of Practice for EIA. These horses are normally very closely monitored for health, breeding and performance reasons, including occasional testing for EIA.

In the UK, prior to the recently detected outbreak in horses imported from Romania via Belgium, EIA was last confirmed in England in 1976 and in Northern Ireland in 2006. Since then, accumulated evidence suggests no presence of EIA in the UK equine population. This evidence is based on prompt investigation of suspected cases and statutory testing for import and export purposes (i.e. scanning surveillance), rather than an active surveillance programme. Nevertheless, there may be a low level of awareness in certain sectors of the horse industry, which is a concern. This also applies to most Member States where active surveillance for EIA is not being applied. Scanning surveillance has been considered sufficient in a country with no EIA outbreaks.

In general, when a case of EIA is confirmed in EU, EU rules are clear about the regulation of movements and testing of equidae from such affected premises. By applying such rules, most historic cases of EIA in the EU Member States have been demonstrated to be of limited nature.

5 Risk questions

Although the situation in Europe for EIA is generally improving, the current situation in certain endemic countries (Italy and Romania) continues to cause concern, in particular that horses travelling on a 10 day health attestation could enter such an endemic country, become infected and then return to the UK.

1. What is the likelihood of a UK origin horse travelling to an EIA endemic area in the EU and becoming infected?"
2. What is the likelihood of the disease then being introduced to the GB horse population?

6 Risk assessment

6.1 Terminology related to the assessed level of risk

For the purpose of the release assessment, the following terminology will apply (OIE, 2004; EFSA, 2006):

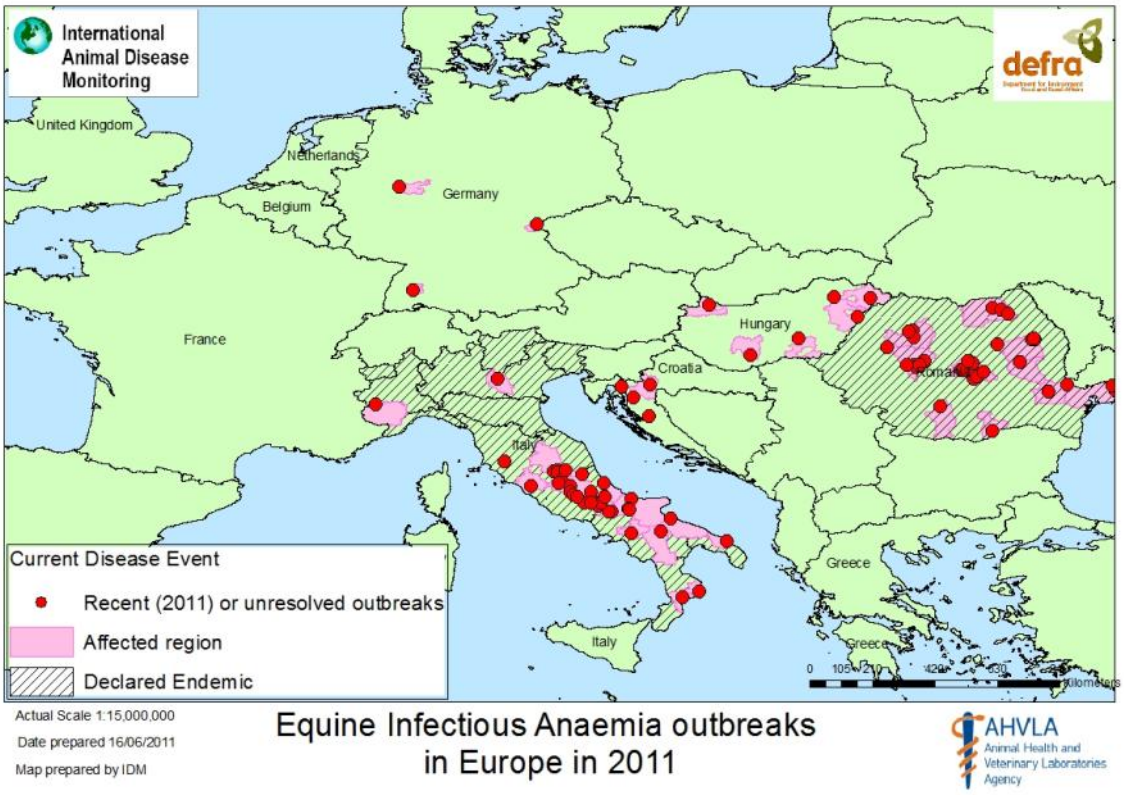
Negligible	So rare that it does not merit to be considered
Very low	Very rare but cannot be excluded
Low	Rare but does occur
Medium	Occurs regularly
High	Occurs very often
Very high	Events occur almost certainly

6.2 Exceptions

This risk assessment will not cover third country trade, which is also governed by specific rules, requiring equidae to originate from premises not currently under restriction for any equine notifiable disease and subject to pre-export testing. The risk of EIA introduction via alternative pathways, other than live animals and germplasm has been covered by previous risk assessments (Defra, 2010). The Tripartite Agreement (covering movements of horses between France, Ireland and the UK) and the risk therein will not be covered in detail in this assessment.

6.3 Release assessment

6.3.1 Current Disease situation in the EU



6.3.2 Routes of movement

Currently, rules governing movement of horses around the EU are harmonised and do not require pre-movement testing of equidae for EIA, unless the horse originates in Romania. All equidae must be accompanied by a passport and a health document stating place of origin is not a premises under restriction for notifiable disease (including EIA) and that the horse is clinically healthy. Horses moving under the Tripartite Agreement (ie between Ireland, France and the UK) do not require health certificates, but do require passports, unless travelling direct to slaughter in which case TRACES notification and animal health certificates are required.

Compared to the existing rules for the movement of other domestic animals within the EU, the movement of equidae is subjected to limited measures, mainly premises freedom from certain equine diseases. With regard to EIA, the only standstill on movement is that put in place if a case has been confirmed on the premises. Any other horses on such premises will have to be tested twice, three months apart, following the destruction of an infected horse(s).

Of current concern is the situation in Italy, where disease has now been confirmed endemic. Historically, there were issues with horses moving to Italy from Romania for slaughter and subsequently no post import checks being carried out to confirm presence of disease. Addditionally, more recent evidence suggests poor compliance with restriction of horses on premises with infected horses, such that some infected horses are not being destroyed and that the 90 day testing procedure for other horses present is not being adhered to. In Romania, the disease situation is less clear and reporting has only recently started since the new trade regulations were introduced in 2010.

Table 1: Summarising the categories of movements of equidae around the EU Member States (After Fuessel, 2005)

Category of equidae	Veterinary Inspection		Traceability	Veterinary Certification	Identification
Registered equidae (studbook FEI)	At place of origin 48 hours prior to loading	Non-discriminatory checks at destination	None	Annex B to 90/426/EC required before movement and further veterinary inspection every ten days whilst on road. Movement does not have to be recorded on TRACES	Passport FEI – International competition organisation
Equidae for breeding and production	At place of origin 48 hours prior to loading	Non-discriminatory checks at destination	Not necessarily	Annex B to 90/426/EC	ID document
Equidae for slaughter	At place of origin 48 hours prior to loading	Non-discriminatory checks at destination	Yes - TRACES	Annex C to 90/426/EC	ID document or passport
TPA	No, unless for welfare or direct to slaughter	No	No – unless direct to slaughter	No – unless direct to slaughter	ID document (either passport or FEI – International competition organisation)

In the case of Romania, specific measures were introduced as an exception to harmonised rules, in June 2010, under Commission Decision 2010/346/EU (European Commission, 2010). Under this Decision, all equidae for trade must be microchipped, travel with a health certificate, be held at an approved premises with no other horses within 200m for 90 days prior to travel and be pre movement tested twice (90 days apart) for EIA. At destination, horses must be isolated for 30 days and tested for EIA no earlier than 28 days post movement. These measures are designed to reduce the risk of movement of infected horses and allow Romania to identify regions of high incidence and put in place appropriate measures to lead to regionalization and eventually disease freedom.

6.3.3 Routes of transmission

The scenario tree below outlines the possible pathways that a horse travelling on a 10 day health attestation could enter an endemic country and become infected, and then return to the UK.

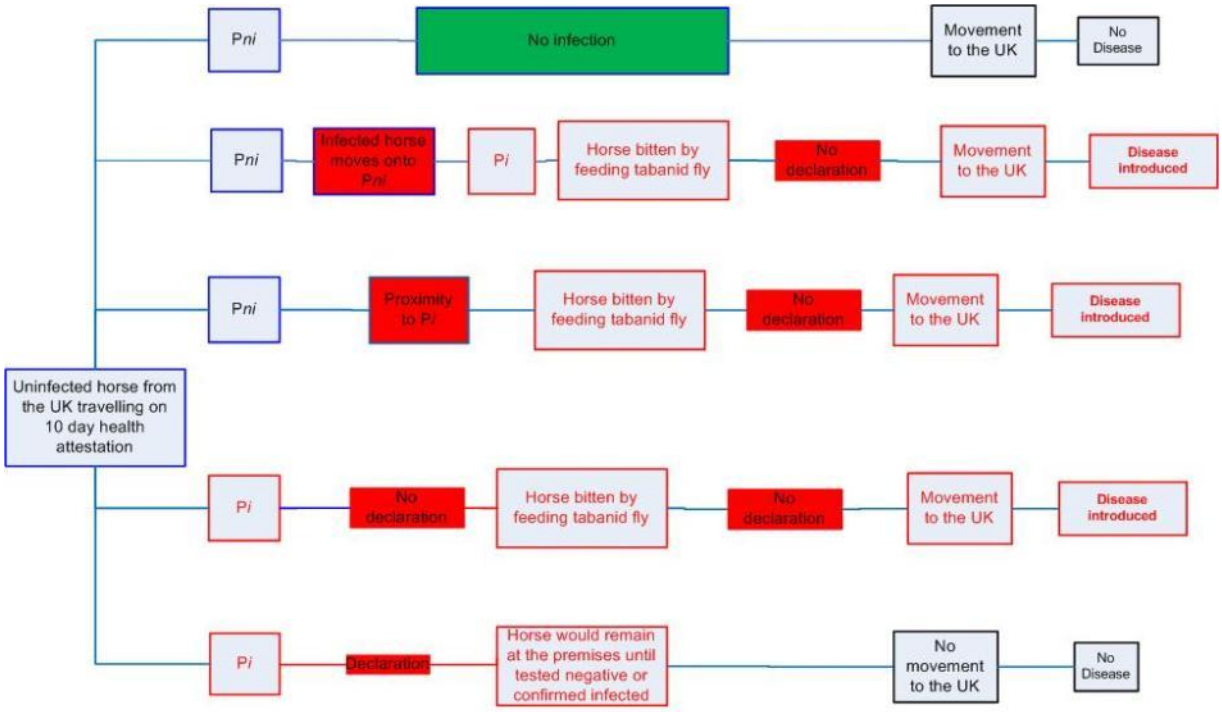


Fig 1: Scenario tree of possible routes of introduction of EIA by a horse travelling to endemic country

Where P*i* = Infected Premises (EIA has been diagnosed and premises is under restriction) and P*ni* is non-infected premises (EIA has not been diagnosed in the past three months, no restrictions)

These pathways rely on EU legislation such that:

1. EIA is a notifiable disease according to Council Directive 82/894/EEC and therefore a Member State is required to notify outbreaks to the Commission and other Member States (using the EU Animal Disease Notification System) and take appropriate action to restrict movement of susceptible animals from the premises.

2. When EIA is notified, the susceptible animals present on the premises are restricted.

3. Movement off the premises of restricted susceptible animals is not permitted.

If these rules are followed then a horse moving to an endemic area either onto a premises with horses under restriction for disease would not be allowed to move off to the next destination country until the infected horses were destroyed, or until the other equidae had tested negative for two Coggins tests, 90 days apart.

There are three possible scenarios where this may not occur:

1. A horse moves to a premises with infected equidae which has not been declared infected. This would either be because the owner is not applying the correct legislation or because the infected animals are subclinical and have not been tested or that the owner is not aware the horses are infected.

2. A horse moved to a premises which is in close proximity to another infected premises which has not been declared. Again, this would be because the owner is not applying the correct legislation or because the infected animals are subclinical and have not been tested.

3. A horse moved to a premises and an infected horse is subsequently moved to the same premises. This could occur if the owner of the infected horse was not aware of its status (i.e. it was subclinical) or if the owner was aware, but was ignoring the legislation.

6.3.4 Means of transmission

Infection could occur by one of two means:

1. bitten by a tabanid fly (horse fly) which has partially fed on another infected horse or

2. by iatrogenic transmission (sharing veterinary equipment).

We consider that sharing veterinary equipment is recognised as being a risk pathway for not only EIA but other equine diseases, and is less likely to be carried out by animal keepers, veterinary technicians and veterinarians in the competition horse population, and the risk of transmission by this route can be negated by normal good practice. Although the outbreaks in Ireland and Northern Ireland in 2006 were transmitted mainly by iatrogenic means, we consider that these cases were atypical and there is now a substantial increased awareness amongst UK veterinary practitioners of this risk, however it would be prudent to trace personnel movements on and off the premises in this type of event. Therefore we consider this mode of transmission to be **very low risk**.

The risk of a horse fly transmitting disease from a sub-clinically infected equid to an uninfected animal is considered to be **very low**, as sub-clinical animals have a lower virus titre than clinical animals (OIE, 2008). Infected horses need to carry at least 10^6 infective doses of the virus per ml of their blood in order for biting flies to successfully infect other horses (Issel and others, 1990). Persistently infected horses only have $1/250^{th}$ of this dose level, but horses in the acute phase of the disease may exceed the required infective dose level (Issel and others, 1990).

The risk of transmission from an infected horse with clinical signs is greater depending on:

- the activity of horses flies (April to October are optimal months, while there may be a greater window of vector activity in some countries, this is generally considered the main vector activity period for Europe. Some microclimate effects, such as high wind, high temperatures and low humidity can have an adverse effect on flies [Hackenberger et al., 2009]);
- proximity to infected horses (<= 200m);
- likelihood of infected horse having high virus titre and;
- the volume of blood transferred to an uninfected horse.

We consider there would be a **medium risk** of transmission (ie occurs regularly) if the correct conditions occur and if clinically infected horses are not being quarantined or destroyed.

6.3.5 Routes of Introduction to the UK

Under Council Directive 90/425/EEC a Member State may conduct risk based checks on live animals for certification compliance purposes. Defra carries out both systematic checks for all horses originating in Romania, and risk based post movement checks on certain consignments of equidae, namely those which have spent time in Italy and any consignments of four or more equidae on a single Intracommunity Trade Animal Health Certificate (ITAHC) also undergoes a Document, Identity and Physical (DIP) check at destination. However the nature of certification and movement means only those animals which travel under Annex C certification and some travelling under Annex B health attestation will be pre-notified on TRACES to the destination authorities and therefore enable the checks to be made (see Table 1).

There is a proportion of horses which routinely travels with a 10 day health certificate. These horses are registered and are generally travelling for competition purposes and are likely to be under the control of the owner or keeper. If the journey originated in the UK and the horse travelled to Italy, they would not be checked. A test carried out on immediate re-entry into the UK would not be sensitive enough to detect such early infection and it would not be realistic to restrict all returning horses for 90 days (see section 5.4). There may be a proportion of horses that travel to Italy and then to other EU MSs before returning to the UK. Such consignments, travelling under health attestation (Certificate B, valid for ten days only) will not be in TRACES and therefore a post import test would not necessarily be carried out.

The owners, keepers, breeders and veterinarians of these registered horses should be aware of the Horserace Betting Levy Board (HBLB) Codes of Practice (CoP) for the control and prevention of equine diseases, including EIA (HBLB, 2010). This states that:

“Owners should attempt to ensure, as far as possible, that their horse will not come into direct contact with horses at risk of EIA infection while in a country

where EIA is endemic or has occurred recently. This includes horses quarantined for EIA, horses at premises that are restricted or under investigation for EIA and horses that do not have a recent negative EIA blood test result."

In the event of a horse returning to the UK which has been in contact with EIA infection, we recommend as good practice that the owner or keeper should notify the appropriate veterinary authorities and attempt to prevent the horse being in direct contact with other horses or horse flies. A horse would not be able to return to the UK if the premises where it had been staying had been put under restrictions for EIA.

Further risk mitigation:

The UK has in place post import testing for ensuring compliance with certification for EU trade. Under this regime, horses which arrive in the UK and are shown to have spent time in either Romania or Italy are tested for EIA. The exception for this are those registered horses returning from Italy with a valid passport and a health attestation (certificate B) provided it is within the ten day validity of the certificate and a new one has not been issued within that period. These animals will not be tested post import because their return movement will not be recorded on TRACES. Horses which have two or more certificates issued for temporary travel (suggesting continual movement through other Member States) could be tested, although the validity of testing so soon after possible infection is questionable and may give false assurance.

The EC Decision 2010/346/EU has reduced the risk of infected live horses and horse germplasm moving legally to other EU Member States from Romania.

The illegal trade in horses is difficult to assess and difficult to guard against in an environment of increasingly shortened resources. While Member States may become aware of fraudulent passport problems, it can take time for information to filter round the Community. The lack of information about horse movements within country also makes tracing such consignments very difficult for the authorities. The onus remains with horse owners and keepers to be aware of the risk of importing disease with incorrectly identified horses and report any suspicious or fraudulent behaviour to the authorities.

Horses travelling under the Tripartite Agreement between France, Ireland and the UK cannot be readily traced because of the lack of requirement for pre-notification of movements (unless moving direct to slaughter). We recognise that this is an inherent weakness which relies on signature countries conducting post import checks on horses arriving from outside the TPA countries. In 2010, under the TPA, France recommended to the UK to follow up on a number of horses from 5 consignments which were known to have arrived in France from Romania and then travelled to the UK since 2007. This tracing exercise was carried out and there was no indication of EIA infection in the horses which were followed up.

6.4 Exposure assessment

The likelihood of spread of EIA among the UK horse population will depend on the speed of diagnosis of infected horses and the means of transmission (see section 5.3.3).

Diagnosis relies on the horse owner / keeper or veterinarian, suspecting EIA and notifying the appropriate authorities, as recommended under good practice; the horse would then be tested. However the test will not work on animals which have only recently become infected. This may take up to 45 – 90 days for sufficient antibodies to give a positive test and animals under suspicion may be restricted until the 90 day test is negative. It would therefore be difficult to conduct immediate post import tests as a) they would be unlikely to show infection and b) it would be unrealistic to restrict every horse in this way for up to 90 days after entry into the UK.

Under national rules (the Equine Infectious Anaemia Order (England) 2006), any equidae with EIA will be destroyed, regardless of presence or absence of clinical signs. Restriction orders would be put in place, such that other equidae present would not be allowed to move until they have tested negative to EIA with the Coggins test, 90 days apart.

6.5 Consequence assessment

A horse diagnosed with EIA will be subject to compulsory slaughter and disposal under National rules (Infectious Diseases of Horses Order, 1987). The Equine Infectious Anaemia (Compensation) (England) Order 2006 stipulates compensation to the value of £1 per animal for horses subject to compulsory slaughter for EIA.

There are negative consequences for the infected premises as they are put under at least 90 day restrictions, until the last infected horses are destroyed and the remaining horses test negative twice, 90 days apart. Official restrictions do not extend beyond premises level and would only affect trade in horses and horse products from the infected premises.

7 Overall conclusions

We consider that in terms of the first risk question or release assessment (“What is the likelihood of a UK origin horse travelling to an EIA endemic area in the EU and becoming infected”), there is a risk for horses associated with travelling to EIA endemic areas and under the right conditions, that risk could be **medium (i.e. could occur regularly)**. These conditions include the presence of a clinically infected horse in close proximity to an uninfected horse during the main

vector active season (April to October is the main vector activity period for Europe – although some microclimate effects, such as high wind, high temperatures and low humidity can have an adverse effect on flies [Hackenberger et al., 2009]). At other times of the year, and in the presence of animals with subclinical infection, the risk remains **low (i.e. rare, but does occur)**, unless there is contact with clinically infected horses via other means, e.g. contaminated equipment and needles.

In terms of the second question or exposure assessment (the likelihood of disease being introduced to the UK horse population) this would again depend on specific conditions being present and an infected horse not being destroyed before onward disease transmission could take place. A horse with clinical signs would be more frequently reported and destroyed, while a horse without clinical signs is less infectious, therefore this risk is considered to be **very low**.

Therefore the combined risk level of a UK horse travelling to an endemic area, becoming infected, returning to the UK and being responsible for onward transmission is **very low**.

Horse owners, keepers and veterinarians should be aware of the HBLB Code of Practice in terms of moving horses to and from EIA endemic areas, including Italy, and the Infectious Diseases of Horses Order (1987) which makes the requirement of notifying EIA to the authorities.

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Unless otherwise stated, this document uses official information received from the World Organisation for Animal Health, Paris, France (http://www.oie.int/eng/info/hebdo/A_INFO.HTM) and the European Commission, Brussels, Belgium (Animal Disease Notification System, Weekly Reports, CVO Emergency Notifications, SANCO Documents). Maps were produced using ESRI Data and maps CD - 2002. **Note:** All maps in this document are for visual purposes only.

Note: Maps are based on numbers reported to the OIE and WHO for 2009. Not all countries fully declare the numbers of cases in wildlife.