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INTERNATIONALE

Report into outbreak of Neurological Equine Herpes Virus (EHV-1) in Mainland Europe February 2021

Part 3: The Way Forward

Lausanne (SUI), June 2022

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USEFUL LINKS

World Organisation for Animal Health (WOAH, formerly OIE), the global authority on animal health founded in 1924: <https://www.woah.org/en/home/>

International Collating Centre (ICC), supported by the [International Thoroughbred Breeders' Association](#), has been collecting and disseminating equine disease outbreak information on a daily basis for over 30 years: <https://equinesurveillance.org/iccview/>

Réseau D'épidémio-Surveillance En Pathologie Équine (RESPE), the French equine pathology epidemiological surveillance system created in 1999 and based on a network of Sentinel Veterinarians, who provide daily monitoring of diseases in horses in France: <https://respe.net/>

1: INTRODUCTION

This third and final part of the Report into the 2021 outbreak of the neurological form of Equine Herpes Virus (EHV-1) in mainland Europe focuses on further risk mitigation against EHV-1, including conclusions from the EHV-1 vaccination review presented at the FEI Sports Forum on 26 April 2022.

This concluding part of the Report looks at the suggested way forward, including specifically whether or not mandatory vaccination should be proposed by the FEI, and the importance of enhanced biosecurity measures.

Part 3 also incorporates significant feedback from the FEI Veterinary Epidemiology Working Group¹ and the FEI Veterinary Committee, and information on two relevant reports from the European Food Safety Authority (EFSA).

Part 1 of the [Report](#) provides a forensic review of the outbreak, including the series of events, causes, roles and responsibilities, and analysis. Part 1 was published on 28 February 2022, together with almost 100 pages of Annexes.

Part 2 of the [Report](#), published on 22 April 2022 together with more than 200 pages of Annexes, covers the biosecurity measures implemented to allow a safe return to competition following the six-week FEI-imposed lockdown on international sport in Continental Europe. Additionally, Part 2 looks at the EHV-1 By-Laws and sanctioning system, the elements subsequently incorporated into the FEI Veterinary Regulations 2022, and concludes with a series of key recommendations.

2: SUMMARY

Following the 2021 outbreak in mainland Europe, there was a need to provide the community with up-to-date information on vaccine efficacy and, more urgently, for the FEI to decide on its vaccination policy going forward. As a result, the FEI Veterinary Epidemiology Working Group was asked to make a recommendation to the FEI Veterinary Committee on whether the FEI should implement mandatory vaccination against EHV-1.

Based on their own extensive expertise, and also on the report commissioned by the FEI from Professor Lutz Goehring, a world-renowned specialist in equine infectious diseases, the Group provided its feedback to the FEI Veterinary Director at a key meeting in early April 2022.

Although not unanimous, the consensus among the Group was that there was currently insufficient scientific justification to recommend mandatory vaccination. As current vaccines are also ineffective against the neurological form of EHV-1, or [Equine Herpes Myeloencephalopathy](#) (EHM), it was agreed that further research needs to take place to allow the development of improved vaccines. The Group was strongly in support of stakeholders making their own decisions to vaccinate their horses.

¹ From the start of the 2021 outbreak, the FEI initiated a series of regular meetings with world leading epidemiologists to conduct a full risk assessment of the further spread of the disease. This ongoing interaction formed the basis of the FEI Veterinary Epidemiology Working Group, which was formalised during the second week of March 2021. Its brief was to monitor the evolution of the EHV-1 outbreak and provide specialist advice on its management and preventive measures for the future. The Group, which is still available for consultation, was composed of leading EHV experts Professor Ann Cullinan (IRL), Dr Richard Newton (GBR), Dr Gittan Gröndahl (SWE), Professor Anne Couroucé (FRA), the FEI Veterinary Director Dr Göran Åkerström and FEI Senior Veterinary Advisor Dr Caterina Termine, supported by Dr Jenny Hall, Chair of the FEI Veterinary Committee and (as of 17 November 2021) a member of the FEI Executive Board.

The Group was, however, unanimous in its view that the implementation of enhanced biosecurity measures would be the best financial investment currently, raising the overall standard at FEI Events and also providing horses with protection against other infectious diseases, as well as neurological EHV-1.

Further to the detailed information and feedback presented by epidemiologists and virologists, the FEI Veterinary Committee concluded that it does not support mandating vaccination, but is fully supportive of enhanced biosecurity measures as the best method of preventing and mitigating outbreaks of EHV-1.

While there has been a significant increase in the number of athletes vaccinating their horses against EHV-1, as well as a rise in EHV vaccine sales, a worldwide vaccination campaign would require greater involvement from National Federations. The FEI Veterinary Committee believes that, given the current rate of vaccination, limited vaccine supplies and supply chain issues for the distribution of vaccines to some parts of the world, and ongoing research into improved vaccines, global vaccination could only be achieved by the year 2025.

The FEI Veterinary Committee strongly supports personal choice and stressed that National Federations and stakeholders must have the right to vaccinate their horses against the disease. There is nothing to prevent individual National Federations mandating vaccination in their national regulations, and some have already done so.

While less virus circulates in a population with a high number of vaccinated horses, it is unknown why a greater number of vaccinated horses developed neurological EHV-1 than unvaccinated horses in both the Ogden (USA, 2011) and Valencia (Europe, 2021) outbreaks. There is nothing to suggest that vaccination makes horses more susceptible to neurological EHV-1, however the data from both these outbreaks does not support vaccination as protection against neurological disease.

Vaccination may reduce viral shedding and viremia², however, it does not completely eliminate these two issues and, as validated by the point above, there is an absence of supporting data relating to the suggestion that a greater number of vaccinated horses under the same roof provides protection.

There is still much research to be done, and the Chair of the Veterinary Committee is keen that benchmarking is conducted to evaluate what percentage of FEI horses are vaccinated and also determine if there are any contraindications associated with vaccination. There is currently no scientific proof that vaccination provides a greater immunity than natural infection, so collating information concerning the prevalence of the disease in the horse's natural environment would also be necessary to determine the benefits of vaccination.

It is clear that an evidence-based approach should be applied to the question of whether vaccination should be made mandatory by the FEI or not and there is a justifiable concern that reliance on vaccination could result in reduced compliance with other biosecurity measures.

There is currently a lack of scientific evidence supporting the use of vaccination and, ultimately, the industry – and our horses – are best served by improved biosecurity protocols. This will raise the overall standard at FEI Events and will have the added benefit of protecting horses against other infectious diseases as well as neurological EHV-1.

² Viremia refers to the presence of a virus or viruses in the bloodstream, resulting in the virus spreading to other parts of the body.

3: THE VACCINATION QUESTION

Session 8 of the FEI Sports Forum on 26 April 2022 focused on the full revision of the FEI Veterinary Regulations and also provided participants with a unique opportunity to meet and put questions to one of the world's leading specialists in equine infectious diseases – and particularly EHV – Professor Lutz Goehring from the Gluck Equine Research Center at the University of Kentucky (USA).

As part of the ongoing research into preventive measures against EHV-1 and particularly its neurological form, Equine Herpes Myeloencephalopathy (EHM), the FEI Veterinary Department had commissioned Professor Goehring to produce a report for presentation to the FEI Sports Forum giving the science-based evidence on the efficacy of vaccination.

The FEI Veterinary Committee Chair Jenny Hall opened the session by outlining what would be covered, also using her opening address to offer a heartfelt thanks to all those in the community who had been involved in helping with last year's EHV-1 outbreak.

"You will all remember how hard the equestrian and veterinary communities worked together to overcome the EHV-1 outbreak in Spain last year", she said. "There were so many people and organisations that made extraordinary contributions that I can't thank them all by name here – those National Federations, team veterinarians, equine hospitals, expert veterinarians, the rider representative, FEI Veterinary Delegates, the Jumping Riders, the EEF, commercial organisations and the entire FEI executive team. The response was truly cross discipline, and I am extremely grateful for that."

She then introduced the keynote speaker for the session, Professor Goehring, who would talk about what she described as the "significant subject", EHV and whether or not the FEI should introduce the requirement for mandatory EHV vaccination. "Today is about how we move on", she said. "Such a decision about vaccination is not made easy by the availability of black and white scientific evidence to guide our decision-making, and we do also recognise the practical challenges presented by the lack of availability of licensed EHV vaccinations in many countries."

Professor Goehring told Sports Forum delegates that his core theme would be Equid Herpes Virus-associated Myeloencephalopathy and the role of vaccination in preventing the disease. "Vaccination will help to reduce EHM numbers during an outbreak, but it will not completely abolish EHM cases during an outbreak and it will not prevent an outbreak completely."

He advised that Warmbloods, sport horses and tall horses are most susceptible to EHM. Female gender and increased age are also significant risk factors, he said, before explaining the ease with which the virus can be spread if the right conditions prevail. "With each sneeze, each cough, each breath – the virus is exiting into the environment".

EHM outbreaks are more common in winter and spring, between November and the end of April, and EHM outbreaks are extremely rare in the southern hemisphere.

EHV-1 is primarily a respiratory tract infection, with infection and replication occurring in the respiratory epithelium³. Neurological herpes or EHM is associated with EHV-1 respiratory tract infection, when viremia allows endothelial cell infection to enter the spinal cord, resulting in

³ The epithelium is a type of body tissue that forms the covering on all internal and external surfaces of the body, lines body cavities and hollow organs and is the major tissue in glands. Epithelial tissues perform a variety of functions that include protection, secretion, absorption, excretion, filtration, diffusion, and sensory reception.

clinical signs, including neurological gait abnormalities such as ataxia⁴, dysmetria⁵, paresis⁶ and ultimately paralysis.

He described the three-tier system that starts with respiratory tract disease with shedding, followed by colonisation of the lymphatic system which can lead to viremia, when the virus enters the bloodstream. Viremia can lead to either the neurological form of the disease or abortion, but if there is no viremia, there is no EHM, he stated.

Reduced viral replication in the respiratory tract means less shedding into the environment and towards other horses in the vicinity, and also less likelihood of the virus colonising the lymphatic system and viremia. Professor Goehring spoke of immunity build-up after either vaccination or previous infection.

He listed the three major goals in infection prevention:

- Keeping the transmissible dose as low as possible
- Keeping the distance between horses as large as possible
- Keeping the immunity level as high as possible

Transmission of the virus can be direct via airborne droplets from one horse to another, or indirect via fomites⁷, which can be animate – such as human hands – or inanimate objects that come into contact with the nostril or head of the horse, such as a headcollar or bridle.

He finished his presentation by reviewing methods to prevent incursion and the spread of EHV-1 during an event, stressing the need for compliance and proactive thinking by all stakeholders:

- Vaccination alone is not enough;
- Vaccination coverage of greater than 85% is required;
- Modernised vaccines need to be produced;
- Event Organisers need advice and support to meet biosecurity requirements;
- Increase distances between horses, reduce bottlenecks and barriers;
- Rapid detection & isolation of a shedding horse to decrease risk of infecting others;
- Horses travelling together should be stabled in "group bubbles";
- Proper isolation facilities must be in place;
- A Standard Operating Procedure (SOP) for use in the event of an outbreak.

The session was then opened up to questions from the floor for the panel of Canadian National Head Veterinarian and highly-respected FEI Official Veterinarian, Dr Yves Rossier, FEI Veterinary Director Dr Göran Åkerström and Professor Goehring, with Jenny Hall as moderator.

Professor Goehring was asked for his recommendation to the FEI on the subject of mandatory vaccination, and he reiterated that vaccination alone was not the answer, although it would reduce the number of EHM cases if horses were vaccinated. "You will have benefits from vaccination, but the vaccine won't do it by itself, you need to have these other restrictions in place, but you will have an easier life to reduce number of EHM cases if they are vaccinated", he said.

⁴ Ataxia is a lack of coordination within the nervous system, resulting in abnormal movement that can occur in the legs, the head, the torso, or all three.

⁵ Dysmetria is the inability to control the distance, speed, and range of motion necessary to perform smoothly coordinated movements. Dysmetria is a sign of cerebellar damage, and often presents along with additional signs, such as loss of balance and poor coordination in walking.

⁶ Paresis is the reduced ability and paralysis is the inability to activate motor neurons. They are signs of a myelopathy or encephalopathy in the central nervous system.

⁷ Fomites are objects or material which are likely to carry infection, such as clothing, buckets, grooming kit, tack etc.

There were discussions around individual National Federations mandating EHV-1 vaccination, and questions about possible side effects from vaccination, but delegates were advised that negative reactions were rare and usually limited to a small injection site swelling. Pharmaceutical representatives from Boehringer Ingelheim and Zoetis also provided input, including an offer of data sharing and collaboration with the FEI.

John McEwen, former Chair of the FEI Veterinary Committee and Director of Equine Sports Science & Medicine at the British Equestrian Federation (BEF), explained that his Federation has an equine infectious disease advisory group that is supportive of vaccination, but not supportive of compulsion. He said there were still some questions to be answered and that equestrian sport should not always follow racing, and in fact the racing community is divided on the topic of mandatory vaccination.

He too strongly supported the need for data, particularly the level of vaccination within the sport horse community. He also said that, as a member of the IHSC Scientific Expert Group, they would be very supportive of the idea of stable-side testing.

4: THE WAY FORWARD

The way forward – by definition – requires a multifaceted approach in order to prevent further devastating outbreaks of EHV-1 and EHM and also maintain the high health status of FEI Horses and the benefits which come with that.

The key questions that the equestrian sports community want answered are whether vaccines can provide effective protection for Horses at FEI Events against outbreaks of neurological EHV-1 (EHM) and will the FEI mandate their use.

The FEI Veterinary Director outlined the way forward during his presentation to the FEI Sports Forum when he advised participants that protection against the virus is achieved by the combination of strong preventive biosecurity measures, along with early detection and isolation of horses that are potentially shedding virus and therefore putting other horses at risk.

Vaccination

There is no doubt that vaccines need to be improved and the FEI will continue to liaise directly with the pharmaceutical industry to drive research for better vaccines. However, the virus is so well adapted to equine biology – possibly uniquely adapted - that such research is very complex.

The FEI Veterinary Committee, with the support of the FEI Veterinary Epidemiology Working Group, is not in favour of mandating vaccination until these improved vaccines have been manufactured and are widely available. However, if scientific evidence can support it and the vaccines can be sufficiently improved by the pharmaceutical industry, then the FEI will re-evaluate the necessity to mandate vaccination.

There is still a lack of published scientific evidence which shows that vaccination protects against EHM, and the experts – epidemiologists, virologists and immunologists – are divided on whether vaccination would sufficiently reduce viral shedding to be effective against EHM, although there is hope that new models of vaccine will improve that.

Many of the horses that died or were very sick in Valencia were vaccinated, but this should not be used as an argument against vaccination of individual horses. This can either be a personal choice or mandated on a national basis.

Vaccine producers make varied claims regarding efficacy and there is limited data on efficacy in field conditions. None of the currently available vaccines work directly against EHM, and although vaccination may reduce viral shedding, that varies between vaccines and individual horses and their age.

As part of the research into the question of whether or not to mandate vaccination, it was important to establish whether vaccines against EHV-1 are widely available. The FEI Veterinary Department conducted a survey amongst National Head Veterinarians (NHVs) with respondents stating that EHV-1 vaccines were licensed in at least 45 countries. Twenty NHVs reported that there no licensed vaccines available in their country. Interruptions in deliveries, possibly due to either lack of vaccines or supply chain issues, were reported by 33 out of 73 respondents.

On the question of whether the community can expect new improved vaccines that will be more effective against EHV-1/EHM, the FEI is aware of four ongoing projects, but these new technology vaccines are unlikely to be delivered to the market within the next five years.

Establishing strengthened biosecurity protocols is the most important preventive measure against virus outbreaks, regardless of whether or not vaccination is ultimately mandated. Vaccination will not provide complete protection, making it mandatory would impose massive costs on the community, and it will not remove the necessity for stringent biosecurity measures and compliance control through sanctions.

All of the preventive measures detailed in this Report are not solely to protect FEI Horses but all horses on-venue, and the ultimate goal is that the full range of measures would also be applicable to any national horses/ponies onsite through strengthened biosecurity protocols put in place by individual National Federations.

Risk classification of FEI Events

Risk classification of FEI Events is key and would allow the FEI Veterinary Department to allocate resources to where they are most needed, such as high-risk events with many horses on venue for many weeks.

We are aware that one size does not fit all, so the way forward involves the use of a risk-based strategy, which removes unnecessary bureaucracy and also closes any loopholes.

This risk-based approach would be adapted to the specifics of each FEI Event and the application of preventive measures would depend on the event type and discipline. For example, CCI-S horses do not stable onsite, they do not meet on the Field Of Play (FOP), there is very limited intermingling (probably only in training arenas), so there is a low risk of transmission. At the opposite end of the spectrum are indoor Jumping events with horses staying many weeks and sharing the same airspace. Endurance is also very high risk as there is a shared FOP, and a large number of vets touching all horses, which could result in direct transmission of any virus.

Currently all Jumping Tours are considered high risk, although some Tour venues have smaller units of stables that are well spread out with good airflows and excellent biosecurity protocols in place. These are obviously lower risk, so identifying the higher risk events within that Tours group is vital.

Where a venue is classified high risk, biosecurity can be scaled up, even with the possibility of pre-arrival testing for some, or rapid tests could be done on arrival at the event prior to admission to the stables. One-day FEI Events without onsite stabling should have a low risk classification and some of the biosecurity measures could be derogated.

The risk-based approach would use a risk scale related to outbreaks:

Green – business as usual;

Yellow – increased surveillance;

Orange – pre-testing;

Red – affected Event immediately stopped; restriction on movement of horses in the affected region/country, and potentially further afield if spread of the outbreak is already advanced.

A change in risk status/alert level of an FEI Event would be triggered by the FEI Veterinary Department in conjunction with the FEI Veterinary Epidemiology Group, with implementation by the FEI Secretary General.

The issue of back-to-back events in one country, where many horses travel onwards from one venue to another, also increases the risk of infectious disease spread, and these events may be categorised as high risk along with the Tours. This is again based on the Critical Control Point (CCP) system (see section below) in conjunction with the FEI Event Standards, which aims to strengthen minimum requirements and improve the overall standard of FEI Events, particularly with regards to stabling, security and biosecurity.

Critical Control Point

Work on a Critical Control Point (CCP) format was started in 2021, but it was too complex to implement for the Return To Competition measures at the end of the FEI-imposed six-week lockdown on international events. Biosecurity protocols can and should be based on the specifics of each individual discipline. However, within the CCP, there has to be consideration of increased costs and potential resultant lowering of the acceptance for the Rules by the community.

The event risk classification system is currently based on two factors: the number of horses onsite and how long they are remaining in that location. The CCP format would also include factors such as venue layout, particularly stabling (ventilation, height of partition walls etc), mitigation protocols and the human and physical resources available to implement them.

As part of the CCP, the FEI is planning to increase the number of venue visits, both pre-event and pre-season, especially to venues that have not yet been visited. Evaluation by an FEI assigned Veterinarian or a member of the FEI Veterinary Department is based on the CCP system and sub-optimal delivery of the biosecurity requirements would result in action being taken by the FEI.

FEI Event Inspections

The FEI Veterinary Regulations need to be amended to include a provision that will allow the FEI Veterinary Department to visit any venues to conduct pre-Event regulatory checks to ensure compliance, but these should be done in an advisory capacity to offer advice and support to the Organisers. This will be included as part of the Rules Revision and consultation process prior to voting at the FEI General Assembly 2022.

Pre-Event Testing

Pre-event PCR testing 120 hours pre-arrival at an FEI Event was mandated under the Return To Competition measures for high risk events in April-May 2021. It was valuable as an emergency measure as it lowered the risk of further EHV-1 outbreaks during a very sensitive period, however it did result in a considerable increase in financial outlay for Athletes and Owners.

Additionally, the science shows that 120 hours is too long and, in the event that there is a requirement for pre-event testing to be reintroduced due to an outbreak, the timeframe needs to be shortened to 96 hours or less in order to come much closer to the “danger time”, which is arrival at the Event site.

Sample logistics are made more complicated by the weekend closure of laboratories and authorities in some countries, so validated low cost stable side testing (rapid antigen tests etc.) close to arrival, or even on arrival at the Event, is a potential option for high-risk events.

The testing system needs to be validated by the World Organisation for Animal Health (WOAH) Reference Laboratories for EHV-1 and this validation should be promoted to the biochemical industry. This could be done through the IHSC public-private partnership with the WOAH, formerly the Office International des Epizooties (OIE).

The systematic use of validated stable side tests by Organisers should be encouraged and could also result in a lower risk classification by the FEI.

FEI Regulations

The FEI Veterinary Regulations, Article 1029 - Biosecurity at FEI Events includes provisions specifically for dealing with EHV.

Article 1029.8 Horses that show clinical signs of neurological Equine Herpes Virus, or have been in contact with such Horses, will not be allowed access to FEI Events by the Veterinary Delegate/Veterinary Commission and Ground Jury. Any affected or in-contact Horse may not be entered in future FEI Events until they have fulfilled health requirements as determined by the FEI Veterinary Department.

And under Article 1029.9. The FEI Veterinary Department reserves the right to carry out testing for Equine Herpes Virus-1 at FEI Events.

This will be expanded to include other infectious diseases in the draft FEI Veterinary Regulations that will be sent out for consultation prior to voting at the FEI General Assembly 2022, and for implementation in 2023 if approved.

Jurisdiction

Jurisdiction is absolutely central to containing outbreaks of infectious diseases, as was shown by the 2021 outbreak in mainland Europe. The benefits of the revised FEI Veterinary Regulations 2022, which give increased powers of jurisdiction to the FEI, were demonstrated in the Thermal (USA) outbreak in early 2022 when the FEI – working in close cooperation and with the full support of the US Equestrian Federation – was able to enforce measures that would not previously have been within the powers of the international governing body.

The FEI encourages all National Federations to implement their own biosecurity rules and strengthen their jurisdiction so that – in the event of an infectious disease outbreak – they can shut down a national event and block horses moving.

Dialogue & Education

Awareness, knowledge and skills, and everyone in the community taking individual responsibility, are also key factors in preventing outbreaks. The FEI must maintain close dialogue with stakeholders, similar to the important discussions that were had with Equestrian Organisers' President Peter Bollen and with the International Jumping Riders Club during the 2021 outbreak.

Educational campaigns around biosecurity and educational content on the FEI's online learning platform, FEI Campus, must be used to keep the entire community updated. The new FEI Solidarity biosecurity project – which has recently been tested in Turkey – will be available for everyone, not just developing countries, with ready-to-use hands-on validated educational material for stable managers and Organisers.

Sanctions

Despite increased knowledge and awareness, particularly after the 2021 outbreak in Valencia and in 2022 in Thermal, there are still members of the community who are reluctant or failing to comply with the biosecurity measures. The FEI is aware that the sanctions need to better reflect the level of biosecurity risk caused by these breaches and, two months after the FEI Sports Forum, the FEI Board made important amendments to the sanction system (see [Updated Sanctions section below](#)).

FEI HorseApp

The FEI HorseApp has been and continues to be instrumental to the implementation and control of biosecurity requirements and outbreak management. It is also a valuable asset to facilitate temporary movement of Horses to and from FEI Events.

It is crucial for the FEI and FEI Officials to be in control of biosecurity at FEI Events, so further development of the FEI HorseApp will continue. An offline capability for the FEI HorseApp is critical in many parts of world and, should mandatory vaccination be implemented in the future, those vaccinations would need to be uploaded to the FEI HorseApp.

Examination on Arrival

The Examination on Arrival is one of the most important tools that the FEI has for identifying horses with signs of infectious disease prior to entry onto an FEI Event venue, and the FEI HorseApp is central to checking whether this has been carried out correctly, or potentially not at all.

Temperature taking, as part of the Examination on Arrival, can be problematic for Grooms with horses that do not accept rectal temperature taking, but horses can be trained for this. The FEI is looking into alternative less invasive methods, but following review, it is clear that thermographic cameras are not an option. Thermographic cameras were used at the Tokyo Olympic and Paralympic Games to assess whether Horses and Athletes were negatively impacted by the heat and humidity. The conditions in Tokyo were validated and there was a huge amount of research behind the use of these cameras as an additional welfare tool for the Games, but the science shows that thermographic cameras do not really function in the very variable conditions at FEI Events.

On-venue temperature monitoring

Athletes and/or Grooms are required to check their horses' rectal temperature morning and evening while stabled at FEI Events. This provides an early warning system in a suspected case, however, as referenced in Part 2 of this Report, the FEI has received information that not all temperature taking is being properly conducted.

As part of their daily routine, FEI Officials will carry out spot checks to observe that body temperature controls are being carried out correctly. This measure should also apply during the Onsite Preparation Period prior to the start of the Event.

Management of suspected cases

The protocols for the identification and management of suspected EHV-1/EHM cases and the resourcing of Isolation Stables have been greatly improved. However, the logistics of weekend testing of samples remains an issue, and the use of stable side tests is a solid solution once these have been officially validated (see [Pre-Event testing above](#)). Once this validation process has been completed, the FEI will establish protocols for the use of these stable side tests.

Emergency Response Unit

The urgent need to set up an Emergency Response Unit, identified in Part 1 of this Report, remains a priority. This would not solely be for use in EHV-1/EHM outbreaks, but for outbreaks of any infectious equine disease at an FEI Event.

The Unit will be funded in full by the FEI and could potentially be made available to National Federations in the event of an outbreak at a national competition.

Measures to minimise spread of infectious agents

Organisers invest huge amounts of money to either construct or rent stables for their Events. There is a clear need to include measures to minimise the spread of infectious agents in the planning of construction and layout of the onsite logistics for humans and equine.

The FEI is available to offer advice and will also provide material to Organisers and producers of permanent and temporary stables with details that can minimise the spread of infectious agents in stable construction, layout and planning. These involve the height of partition walls, the optimal volume of shared airspaces, ventilation etc.

5: FEI VETERINARY REGULATIONS/HORSE HEALTH REQUIREMENTS

The revised FEI Veterinary Regulations 2022 were updated based on experience from the 2021 outbreak and EHV-1 By-Laws. The main goals are preventing sick horses from entering FEI venues, rapid detection and isolation of suspected cases, prevention of further viral spread and ensuring top-level veterinary care of sick horses.

The **Horse Health Requirements** (HHR), based on the EHV-1 By-Laws that applied in mainland Europe from 31 May to 31 December 2021, were rolled out globally on 1 January 2022.

The Requirements have been put in place to protect FEI Horses and global equestrian sports from the consequences of infectious diseases being transmitted before, during and after FEI Events. The Requirements provide reassurance of the high health status of FEI Horses to global, continental and national veterinary authorities and organisations, and also maintain and further improve the conditions for international movement of sport horses.

The FEI IT Department continues to work on improved functionality in the FEI HorseApp. A new home page in the form of a dashboard for use by Persons Responsible (PRs) will be added and will allow Athletes and Grooms to see the status of compliance to the Horse Health Requirements for each of their Horses entered for every upcoming show.

In accordance with Articles 1029 and 1031 of the FEI Veterinary Regulations, all Horses competing at all FEI Events worldwide must fulfil the Horse Health Requirements via the **FEI HorseApp**. The Requirements entail:

- Taking two daily temperature readings for every Horse that will be present at an FEI Event for the three days leading up to the day of arrival and enter these recordings in the FEI HorseApp;
- Completing a Horse Health FEI Self-Certification form on the FEI HorseApp for all Horses attending an FEI Event;
- Taking the temperature of each Horse twice daily at the FEI Event (using your own thermometer) and recording the measurements directly in the FEI HorseApp.

6: UPDATED SANCTIONS

Clearly there is a need for ongoing revision of the Rules to optimise biosecurity and safety, and also enforcement through a proportionate sanction system. A sanction system for non-compliance was put in place on an educational basis in mainland Europe on 1 October 2021 before implementation on a fully functional basis in Europe on 1 November 2021.

Sanctions are triggered by any of the following failures to fulfil the Requirements:

- 1, Missing one or more temperature recordings during the three days prior to the day of arrival at the Event
- 2, Failure to submit the FEI Horse Health Self-Certification Form at the latest on the day of arrival at the Event
- 3, Missing one or more temperature recordings during the period of the Event

At an in-person FEI Board Meeting (21-22 June 2022), the FEI Board discussed proposed revisions to the HHR sanction system based on the following rationale:

- To maintain the high health status of FEI Horses and ensure biosecurity standards at FEI Events
- To ensure the sanctions are proportionate and better aligned to the actual biosecurity risks presented at FEI Events
- To provide more flexibility to PRs (Athletes/Grooms) & gain better community acceptance

The FEI Board was provided with data on Horses that had triggered sanctions since the system was initiated in mainland Europe on 1 November 2021 (until the time of the Board meeting). There are currently no sanctions for horses competing in non-European events.

During that period, over 90,000 Horses had participated in European events run under FEI Rules, 78.45% (71,266 horses) of which had done so in full compliance with the Requirements. Of the remainder:

- 17.76% (16,133) participated & reached offence level 1
- 3.25% (2,952) participated and reached offence level 2
- 0.50% (452) participated and reached offence level 3
- 0.05% (45) participated and reached offence level 4

Following discussions, an Emergency Board Resolution was unanimously approved on the proposed revisions to the sanction system. The amended sanction system now allows for two warnings following breaches of the HHR before a CHF 200 fine is imposed. A further two violations will result in the fine being increased to CHF 300 and the Horse will be blocked in the FEI Database for 10 days. Similarly, two further breaches, or more, will result in a CHF 400 fine and the Horse will be blocked for one month.

As previously, **sanctions apply per Horse** and will be issued by FEI Headquarters following an automated process. The fine (where applicable) will be issued to the PR of the given Horse. Sanctions are not appealable and fines will be automatically issued by the FEI to the National Federation of the PR. Payment of the fine must be made to the applicable National Federation and fines cannot be paid by the PR directly to the FEI.

The updated sanctions apply to all FEI Events in mainland Europe as of **4 July 2022** and globally as of **1 September 2022**. The modified sanction system is incorporated into Annex VI of the [FEI Veterinary Regulations](#), and is also available [here](#).

7: EUROPEAN FOOD SAFETY AUTHORITY REPORTS

As a direct result of the EHV-1 outbreak in mainland Europe in February and March 2021, the Directorate of Health, DG Santé, of the European Commission requested expert advice from the European Food Safety Authority (EFSA) in March 2021 on whether EHV-1 met the requirements for classification as a Notifiable Disease under the EU Animal Health Law (AHL).

Notifiable vs Reportable

The AHL has distinct definitions for Notifiable and Reportable Diseases as per below:

Reportable Disease

The AHL defines "Reportable Disease" as an environmental toxin, infestation, syndrome or transmissible disease that is prescribed as a Reportable Disease for the purpose of implementing preventive, control or eradication measures:

- (a) to safeguard animal health;
- (b) to safeguard public health in relation to environmental toxins, infestations, syndromes or transmissible diseases that are or may be transmissible from animals to humans;
- (c) to avoid barriers to trade;
- (d) for other reasons in the public interest.

Reportable Diseases include transmissible diseases, environmental toxins, infestations and syndromes. Some Reportable Diseases are zoonotic, meaning they can be transmitted to humans.

Notifiable Disease

The AHL defines a "Notifiable Disease" as an environmental toxin, infestation, syndrome or transmissible disease that is prescribed as a Notifiable Disease for the purpose of implementing monitoring measures:

- (a) to determine its presence, identity, nature, effects or spread;
- (b) to avoid barriers to trade;
- (c) for other reasons in the public interest.

EFSA's initial document, *Assessment of listing and categorisation of animal diseases within the framework of the Animal Health Law (Regulation (EU) No 2016/429): infection with Equine Herpes Virus-1*, adopted on 23 November 2021 and published on 12 January 2022, gave inconclusive support for making EHV-1 a Notifiable Disease.

A follow-up EFSA report, *Clinical impact, diagnosis and control of Equine Herpesvirus-1 infection in Europe*, adopted on 17 March 2022 and published on 6 April 2022, provides a list of recommended key risk mitigation measures against EHV-1, the majority of which are already in place in the FEI Veterinary Regulations and Horse Health Requirements. And although EFSA states in its second report that vaccination against EHV-1 should be promoted, it qualifies this by saying that vaccination "offers limited protection against the neurological form of the disease".

The detailed risk mitigation measures listed by EFSA as key to ensuring safe movement/trade of horses are:

- Health certificate to be issued no more than 48 hours before movement to a new premises, stating at least that animals do not show clinical signs, vaccination status and, in the previous 21 days, no cases were detected in the premises of origin;
- Pre-movement testing depending on the epidemiological situation;

- Promoting vaccination against EHV-1 and information on its limitations to protect against neurological disease;
- Isolation of horses on arrival in a new premises, with regular health monitoring, in particular rectal body temperature monitoring;
- Early detection of EHV-1 infection by well-established and validated diagnostic tools and laboratories;
- Application of biosecurity measures, among those cleaning and disinfection of fomites, premises and transport vehicles as recognised important environmental sources of the virus;
- Application of movement restrictions during outbreaks and/or in case of suspicion of infection. No movements should be allowed during the period of the outbreak as long as new cases are detected, and for 21 days after the detection of the last case.

The only measure that is not directly covered by the FEI Regulations is the requirement for isolation of horses on arrival in a new premises, as this is not applicable for FEI Events. However the rest of this point – regular health monitoring, in particular rectal body temperature monitoring - is provided for in the FEI Veterinary Regulations.

8: IHSC TASK FORCE FOR EHV-1 LEGISLATIVE STATUS

The International Horse Sports Confederation⁸ (IHSC) Task Force for EHV-1 Legislative Status was established on 8 March 2022. Its remit is to evaluate the EFSA reports and to provide facts, perspective and recommendations of the sport horse industry to the relevant stakeholders, and particularly to the European Commission (EC) on the future legislative status of EHV-1.

The Task Force is chaired by FEI Veterinary Director Dr Göran Åkerström and its members are two France Galop representatives, Chief Veterinary Officer Sonia Wittreck and Dr Stephanie Chapman, Head of Anti-Doping and Equine Welfare, and Dr Kenneth Lam from the Hong Kong Jockey Club.

The Task Force also has three external experts; Professor Ann Cullinane (Head of WOAH Reference Laboratory in the Irish Equine Centre) and Dr Richard Newton (former Director of Equine Infectious Disease Epidemiology Department at Animal Health Trust UK), both of whom were members of the FEI Veterinary Epidemiology Working Group, and Dr Des Leadon, Chairman of the Veterinary Advisory Committee of the European Federation of Thoroughbred Breeders' Associations.

The Task Force conducted a global survey to collect feedback on the EHV-1 notification and management policy from equine industry stakeholders, covering the equestrian, racing and breeding industries, including those from European Union Member States. The Task Force also took into consideration the biosecurity recommendations in the second of the EFSA reports.

The Task Force will prepare a detailed dossier for submission to the European Commission in the coming months, and the legislative body is required to consult with the relevant stakeholders prior to making a decision on whether or not to make EHV-1 a Notifiable or Reportable Disease.

⁸ The International Horse Sports Confederation (IHSC) was formed in 2013 between the Fédération Equestre Internationale (FEI), world governing body for horse sport, and the International Federation of Horseracing Authorities (IFHA), the first formal vehicle for cooperation between the world's leading bodies for equestrian sport.

9: CONCLUSIONS

Due to the endemic nature of EHV 1 & 4, the FEI strongly believes that EHV-1 should be classified as a Reportable Disease but not a Notifiable Disease in the EU AHL. The reasons supporting this view are that the virus is endemic, is latent in most equines, and reactivation of the virus is common. There are currently no diagnostic methods available to detect latent EHV-1 infections.

Making EHV-1 a Notifiable Disease would have a significant negative impact on the equestrian sports sector, as well as the racing and breeding industries, and would restrict horse movement among EU Member States and Great Britain. Notifiability could also have the undesirable consequence of outbreaks not being reported for fear of repercussions, such as restricted movement of horses across borders, closure of home stables etc.

On the question of whether or not to mandate vaccination against EHV-1, it was crucial that the FEI focused on whether there was sufficient scientific evidence to justify mandatory vaccination for all FEI Horses. Input from the FEI Veterinary Epidemiology Working Group, equine disease expert Professor Lutz Goehring and the FEI Veterinary Committee was key during the decision-making process.

For this very specific equine population which travels internationally, it was also important for the FEI to concentrate more on protection against neurological EHV-1 rather than preventing abortion or respiratory disease, which – while they are of course significant – are less relevant to FEI Horses.

All parties stressed that there is clearly a need for more effective EHV-1 vaccines and the FEI will continue to liaise closely with the pharmaceutical industry, epidemiologists, virologists and immunologists to ensure that this remains a key focus for their research.

The FEI will maintain the direct liaison and dialogue with vaccine developers and producers and has already had constructive meetings with both Boehringer Ingelheim and Zoetis to discuss improvements to the current vaccine technology. The timing of production of this improved vaccine will also play a key role in the timing of an informed decision on mandating EHV-1 vaccination on a global basis.

Although both the Ogden and Valencia outbreaks caused great distress and the tragic loss of horses, it is a fact that major outbreaks of neurological EHV-1 are still a rare occurrence. However, despite that rarity, the risk of an outbreak will never be completely eliminated due to the endemic nature of the virus.

At this point in time, the FEI Veterinary Committee does not support mandating vaccination, but is fully supportive of enhanced biosecurity measures as the best method of preventing and mitigating outbreaks of EHV-1.

The implementation of these further biosecurity measures has helped to reduce that risk and, until the science supports mandating global vaccination, the decision to vaccinate should be taken by individual stakeholders rather than the regulatory body.

In the meantime, the FEI will continue to seek further input and keep the situation under review, with two – and possibly more – options on the table:

- Deferring a rule proposal on mandatory EHV-1 vaccination to the 2023 FEI General Assembly at the earliest;
- A rule proposal on mandatory vaccination against EHV-1 with implementation in 2025 in countries with available licensed vaccines.

The FEI is open to discussing other proposals together with stakeholders and the pharmaceutical industry, but regardless of any potential alternatives, the FEI will work on identifying and filling in the gaps of knowledge and will encourage academic institutions to conduct field studies, particularly on vaccine efficacy and the level of immunity brought about by circulating virus.

Much of the “way forward” strategy is already in place following implementation of the new biosecurity measures in the FEI Veterinary Regulations 2022. There was never any doubt that these protocols were the right way forward, even if there are still ongoing improvements to be made. However, possibly the best endorsement of the measures comes in the second of the EFSA reports, the content of which shows that the FEI is already fulfilling virtually all the recommendations from the EU body. Despite this, the FEI will – as with all FEI Rules and Regulations – conduct regular reviews of the biosecurity measures to ensure that they remain fit for purpose going forward.

The FEI has taken many learnings from the EHV-1/EHM outbreak of 2021 and, because of that, the FEI and the equestrian community as a whole are now in a much stronger position to mitigate and deal with any potential future outbreaks.

***Dr Göran Åkerström
FEI Veterinary Director***

***Grania Willis
Executive Consultant to FEI***

10: ANNEXES TO EHV-1 REPORT PART 3

ANNEX 1 - FEI Sports Forum, Session 8: FEI Veterinary Regulations (presentation & video replay of the full Session are available [here](#))

ANNEX 2 - European Food Safety Authority (EFSA) Reports:

Assessment of listing and categorisation of animal diseases within the framework of the Animal Health Law (Regulation (EU) No 2016/429): infection with Equine Herpes Virus-1

And [*Clinical impact, diagnosis and control of Equine Herpesvirus-1 infection in Europe*](#)

ANNEX 3 - Horse Health Requirements – these are available [here](#), with specific information for Athletes & Grooms, FEI Veterinarians, Organisers, and National Federations

ANNEX 4 - FEI HorseApp – videos & guidelines on how to use the FEI HorseApp to fulfil the Horse Health Requirements are available [here](#)

ANNEX 4 - FEI HorseApp – all information about the FEI HorseApp can be found [here](#). (Log in using FEI ID number and password)

ANNEX 6 - Sanction System – information about the revised sanction system is available [here](#)

USEFUL LINKS

World Organisation for Animal Health (WOAH, formerly OIE), the global authority on animal health was founded in 1924: <https://www.woah.org/en/home/>

International Collating Centre (ICC), supported by the [International Thoroughbred Breeders' Association](#), has been collecting and disseminating equine disease outbreak information on a daily basis for over 30 years: <https://equinesurveillance.org/iccview/>

Réseau D'épidémio-Surveillance En Pathologie Équine (RESPE), the French equine pathology epidemiological surveillance system created in 1999 and based on a network of Sentinel Veterinarians, who provide daily monitoring of diseases in horses in France: <https://respe.net/>