Surveillance Focus

Helping the equestrian community prevent and manage disease outbreaks

Caterina Termine and **Victoria Rydborn** of the Fédération Equestre Internationale describe how the FEI HorseApp has become a crucial tool in helping to prevent and manage outbreaks of infectious diseases at equestrian events.

THE Fédération Equestre Internationale (FEI) is the governing body for all international events in jumping, dressage and paradressage, eventing, driving and paradriving, endurance and vaulting. It has 136 member national federations and over 120,000 registered athletes and horses competing in 4000 international events annually. The FEI establishes the competition regulations, ensures they are enforced and approves equestrian programmes for championships, continental and regional games, as well as the Olympic and Paralympic Games.

As the governing body, the FEI promotes all forms of equestrianism while prioritising the safeguarding of horses, and promoting the highest levels of equine welfare.

Ensuring equine welfare at FEI events

At FEI events controls take place at specific times during each competition to check the horse's health and fitness to compete.

Examination on arrival

Horses arriving at the event must undergo an examination on arrival before being allowed access to the FEI stables area. The horse's identity is first checked against its passport, following which an FEI veterinarian ensures the horse has been vaccinated against equine influenza

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in accordance with the FEI veterinary regulations. The vet also records the horse's rectal temperature on arrival and examines the horse for any clinical signs consistent with infectious diseases or injuries sustained during transportation to the event.

Pyrexic horses (that is, those with a rectal temperature of >38.5°C) and their in-contacts are not permitted to enter the stables area and are stabled in the event's isolation boxes for monitoring, investigation and treatment. Pyrexic horses are also tested for equine herpesvirus 1 (EHV-1) and equine influenza.

The FEI veterinarian will also ensure the 'person responsible' (PR) (that is, the athlete, driver or vaulter) has recorded the horse's rectal temperature twice daily for the three days before arrival at the event, and has completed an equine health self-certification form. The form requires the PR to confirm that the horse has not displayed any clinical signs of infectious diseases and has not been in contact with, or been kept on the same premises as, horses under investigation for EHV-1.

Temperature monitoring

The PR must take and record the horse's rectal temperature twice daily for the duration of the event. Should the horse's health status change, or the horse develop pyrexia, the PR is obliged to report it immediately to the veterinary delegate (VD) – this is the FEI's veterinary representative at the event.

> "At FEI events controls take place at specific times during each competition to check the horse's health and fitness to compete"

As described above, any horses that develop pyrexia during the event are stabled in the event's isolation boxes where they are examined, monitored, tested for EHV-1 and equine influenza and treated, if necessary.

Horse inspection

The horse inspection, which is an evaluation of the horse's fitness to compete, takes place within 24 hours before the start of the first competition at the event. The VD makes a brief visual examination of the horse and evaluates the horse's gait. Following advice from the VD, the ground jury, who are the official judges at the event, then determines if the horse is fit to compete.

Additional health checks and examinations

The VD must be present on the 'field of play' to observe horses during warm up and competition. Should the stewards or ground jury identify any equine health and welfare concerns with a horse during the event, they may request that examination by an FEI veterinarian takes place.

Some equestrian disciplines impose additional health checks at various points within a competition; for example, an evaluation of eventing horses at the beginning and end of the cross-country phase, and at the end of every loop of the competition for endurance horses. These checks and examinations provide additional opportunities for horses to be clinically assessed.

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Equine antidoping and controlled medication testing, and examination of horses for hyposensitive and hypersensitive areas of the lower limbs, are also carried out. These controls ensure the horse's welfare and fitness to compete, maintain fair play, and allow for additional opportunities to identify any changes to the horse's health during the event.

The FEI HorseApp

In February 2021, a major neurological EHV-1 outbreak occurred at an FEI event in Valencia, Spain, resulting in the FEI cancelling competition for six weeks in 12 countries across mainland Europe. Competitions resumed on 31 May 2021 under enhanced measures to support the existing biosecurity requirements in the FEI veterinary regulations.

To support implementation of these heightened biosecurity measures and requirements, specific modules were integrated within the FEI HorseApp, a mobile application initially launched by the FEI in 2016 to centralise and manage horse passports and identification documents, as required under the FEI general regulations and veterinary regulations at FEI events. The upgraded app was first used at FEI events in May 2021 to help prevent further potential EHV-1 outbreaks.

At the time of the 2021 EHV-1 outbreak in mainland Europe, a module was being developed to manage equine influenza vaccinations through the FEI HorseApp. However, this was put on hold as necessary modules were created to assist veterinarians and stakeholders to monitor and control the EHV-1 outbreak.

The FEI HorseApp in practice

Following the EHV-1 outbreak in 2021, the FEI veterinary regulations were subsequently revised to incorporate a number of additional biosecurity measures as permanent rules. The use of the FEI HorseApp at all FEI events became mandatory from 1 January 2022.
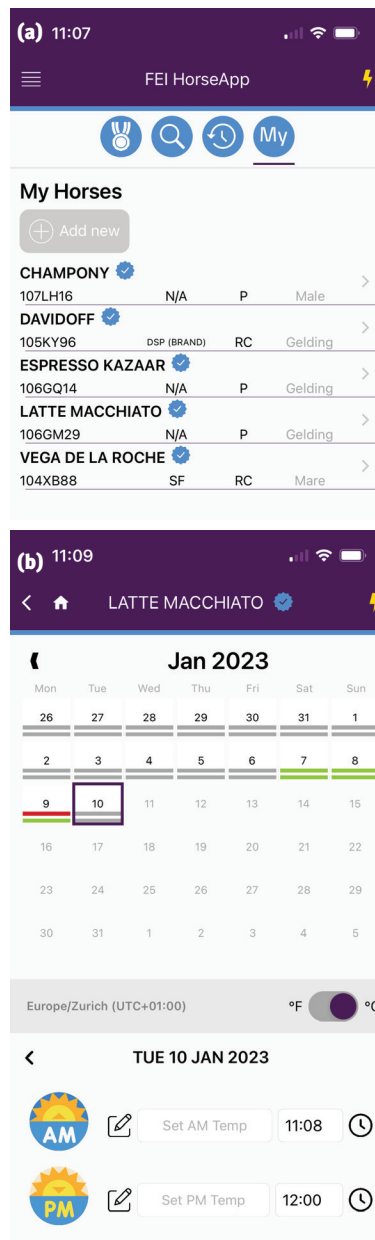
Currently, the FEI HorseApp is

Fig 1: (a) A list of 'My Horses', and (b) the calendar view of temperatures recorded, on the FEI HorseApp

used routinely to prevent infectious disease outbreaks at FEI events. It is designed to be quick and user-friendly, with anyone associated with the horse (such as the groom, athlete or owner) able to enter the temperature recordings on a daily basis. A list of all horses owned can be created and displayed on the app for easy access, and for each horse there is a calendar view of the temperature recordings entered (Fig 1).

During the examination on arrival at an event, the FEI veterinarian uses the FEI HorseApp to record the date and time of the horse's arrival, and its rectal temperature. The

veterinarian logs into the app using their FEI identification number, selects the event at which they are officiating, and connects the app to a microchip reader comprising integrated Bluetooth technology.

The veterinarian scans the horse using the microchip reader, and when the microchip number is identified, this automatically opens the horse's record on the FEI HorseApp. The scan geolocalises the horse and logs the date and time of its arrival.

If needed, the veterinarian can use the app to verify if the equine health self-certification form has been completed by the PR, and can consult the prearrival rectal temperature recordings. If the horse has been pyrexic within the three days before its arrival, the veterinarian is alerted through the app and provided with complementary information (Fig 2).

Throughout an FEI event, the FEI officials can consult the daily temperature recordings of all horses stabled on site via the app, allowing any pyrexic horse to be identified at the earliest possible opportunity. The horse is then moved to the
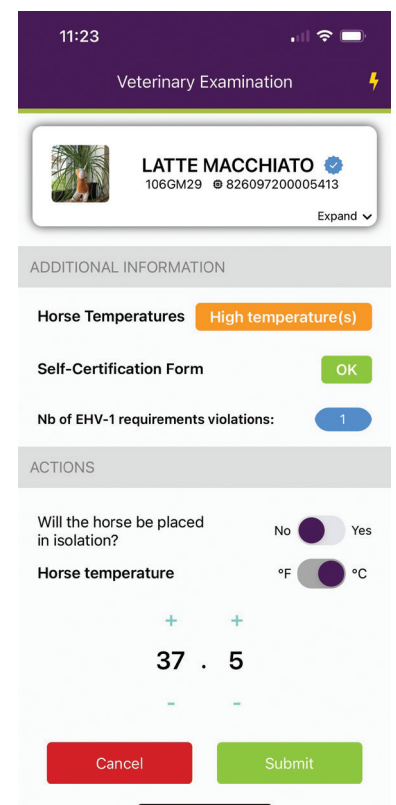

Fig 2: Information overview for FEI veterinarians carrying out the examination on arrival
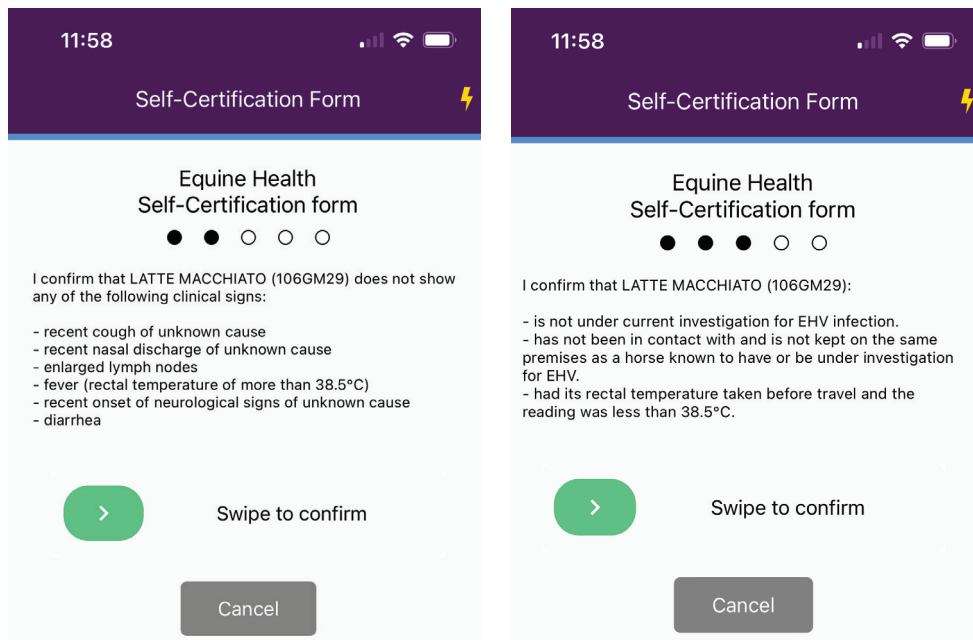
Fig 3: Example of information required through the equine health self-certification form

event's isolation boxes to prevent any potential transmission of an infectious disease.

PRs are still obliged to complete an equine health self-certification form in the FEI HorseApp before arriving at the event (Fig 3). The FEI considers this an important official declaration which is designed to raise the PR's awareness of the risks of bringing horses from stables with suspected or confirmed cases of infectious diseases.

Should PRs fail to provide the horse's temperature or complete the equine health self-certification form in the app, they are automatically issued with a warning or sanction in accordance with the FEI veterinary regulations (https://inside.fei.org/content/fei-veterinary-rules).

A horse's departure from an event is logged in the FEI HorseApp by a member of the organising committee. The logging of the horse's arrival and departure is essential to controlling the overall traceability and movement of the horse, in the event an outbreak of infectious disease does occur.

Responding to equine infectious disease outbreaks

The FEI veterinary regulations oblige the event's VD to inform the FEI veterinary department immediately should there be a suspected or confirmed case of an infectious disease.

The FEI HorseApp is absolutely crucial as an early warning tool to identify a potential infectious disease outbreak. It provides real-time traceability of the horses, as well as the early detection and prevention of disease transmission. It also allows the FEI to implement the most suitable emergency biosecurity measures, such as serial sampling of horses, splitting horses into smaller groups, and reducing the volume and flow of horse and human traffic within the stables area.

Should the FEI declare an infectious disease outbreak, all PRs must register the GPS location of their horses that have attended, or are in attendance at an FEI event, using the self check-in module in the FEI HorseApp.

With the information on the horse's location, the FEI can conduct a tracing exercise on horses that have left the event venue. The FEI can then contact the PRs of these horses to give them appropriate advice on preventing any potential onward disease transmission to horses at their home premises.

If horses travel to other FEI or national events directly from an affected event, the FEI's online entry system is used to identify the FEI events the horse will be travelling

to. This allows the FEI veterinary department to ensure that the horses are isolated on arrival and not allowed entry to the stables area, preventing any possibility of disease transmission.

Future developments

The FEI HorseApp is constantly being upgraded and additional modules added on a regular basis. The FEI is now continuing its work on the module for the electronic recording of equine influenza vaccinations, which will allow the horse's veterinarian to securely log data into the FEI HorseApp at the time of vaccination. This functionality would allow for the generation of vaccination reminders, ensure compliance with the EI vaccination intervals, and facilitate vaccination control during the examination on arrival at FEI events.

Longer-term plans include the electronic recording of veterinary medicines and treatments used at events, and a paperless system to support the FEI's equine antidoping and controlled medication programme.

Summary

The FEI HorseApp is now a crucial tool in the prevention and management of equine infectious disease outbreaks at FEI events. It not only serves to protect FEI horses but also those within the wider community, providing reassurances of the high health of equestrian sport horses to global, continental and national veterinary authorities and further improving conditions for the international movement of sport horses.

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