



Department
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DEFRA / AHT / BEVA EQUINE QUARTERLY DISEASE SURVEILLANCE REPORT Volume 8, No.3: July – September 2012



Highlights in this issue:

- **Equine Infectious Anaemia in Europe**
- **Equine Herpes Virus in the United Kingdom**
- **Focus article: Biosecurity at the 2012 Olympic Games**

Important note:

The data presented in this report must be interpreted with caution, as there is likely to be some bias in the way that samples are submitted for laboratory testing. For example they are influenced by factors such as owner attitude or financial constraints or are being conducted for routine screening as well as clinical investigation purposes. Consequently these data do not necessarily reflect true disease frequency within the equine population of Great Britain.



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Introduction

Welcome to the third quarterly equine disease surveillance report for 2012 produced by Department of Environment, Food and Rural Affairs (Defra), British Equine Veterinary Association (BEVA) and the Animal Health Trust (AHT). Regular readers will be aware that this report collates equine disease data arising from multiple diagnostic laboratories and veterinary practices throughout the United Kingdom giving a unique insight into equine disease occurrence on a national scale.

National disease occurrence

Reference Documents – Updates

The HBLB Codes of Practice for 2013 have recently been updated and published and can be found by via the following [link](#). BEVA have also recently published updated artificial insemination regulations which can be found via the following [link](#).

Contagious Equine Metritis (CEM)

With reference to recent CEM incidents detailed in Equine Quarterly Disease Surveillance Report Vol. 8 No.2 both incidents have been declared resolved. Horses placed under restriction in both incidents have tested negative for *Taylorella equigenitalis* infection. The incidents include an outbreak in Gloucestershire involving two infected premises with one infected mare on the index premise and a mare, a gelding and a stallion on a linked premise with confirmed infection (four in total). The second incident involved a CEM tracing exercise to identify mares that had been inseminated with semen from a stallion from an AI centre in Germany that had tested positive to CEM. All UK animals that were being investigated have tested negative and on 15th August restrictions on all horses were lifted.

Equine Influenza (EI)

Equine influenza continues to be of importance within the United Kingdom. In this issue we report on one outbreak that occurred during this quarter. As of 9th November 2012, two further outbreaks of EI have been reported by the Animal Health Trust.

On 11th October 2012, EI was confirmed in an unvaccinated five year old gelding in County Durham. The horse showed clinical signs of pyrexia, nasal discharge and a cough. The affected group consists of eleven horses, of which three have been affected. The second case was confirmed on 6th November in a six year old, unvaccinated, Irish Sports Horse gelding in Roxburghshire, Scotland. The affected horse had recently been imported from Ireland with six other horses and showed typical clinical signs. Both cases were confirmed on the basis of a positive result via a matrix protein qPCR on a nasopharyngeal swab.

The outbreaks have been reported by the new text alert service sponsored by Merial Animal Health, **Tell-Tail**. This free of charge service alerts practitioners to outbreaks of equine influenza in the UK by a text message to the practitioner's mobile phone. If you are an equine veterinary practitioner and would like to sign up for this scheme, please register



at the following website <http://www.merial.co.uk>. This service has also been offered to the members of the National Trainers Federation (NTF). If you would like to contact us regarding outbreaks of equine influenza virus or would like to sign up for our sentinel practice scheme, please send a message to: equiflunet@aht.org.uk or follow the link to www.equiflunet.org.uk for more information on equine influenza.

Equine Infectious Anaemia (EIA)

On 3rd October 2012 a case of EIA was confirmed by the Defra in a non-Thoroughbred horse in Cornwall. The horse was clinically affected and subsequently euthanased. Twenty five horses on the affected premises along with two horses each on each of two neighbouring premises that remain under restrictions have all tested negative on the agar gel immunodiffusion (AGID, 'Coggins') antibody test. All animals will remain restricted pending results of repeat AGID testing to be undertaken at least ninety days after the initial sampling.

A single horse that had moved off the affected premises having spent four days stabled next to the infected horse has been traced to another premises in Cornwall, placed under restriction and has tested negative. Restrictions will remain in place until second samples are taken from the horse at least ninety days after the initial test. Four other horses that are also present on the same premises have tested negative.

Epidemiological investigations by Defra/AHVLA into the potential origin of infection in the Cornwall EIA case have shown that eighteen horses were imported on the same day in April 2008 as two consignments and among these were the most recent case in Cornwall including the EIA positive horse that was identified in Devon in 2010 which was subsequently euthanased for disease control purposes. These animals were transported from the same Belgian premises, in the same vehicle, to the same destination in Devon. Investigations to establish the current locations of the remaining sixteen horses from this consignment have been carried out.

A clinical case reported to Defra as suspicious of EIA (a 'report case') 2.5 miles from the affected premises in Cornwall had restrictions lifted on 11th October based on a negative test and there being no epidemiological link to the affected premises or the consignment of horses that were imported in 2008 with the infected horse.

On 18th October 2012 Defra confirmed a second case of EIA in a mare on a livery yard near Paignton in Devon. The mare did not show any clinical signs of disease and has been euthanased. There are 10 in-contact horses residing at the affected premises which has been placed under restriction and veterinary investigations are being carried out. None of the in-contact horses have a history of or are showing clinical signs suggestive of EIA.

Equine Viral Arteritis (EVA)

On the 5th of October 2012 the UK's Chief Veterinary Officer confirmed a case of subclinical equine arteritis virus (EAV) infection in a non-Thoroughbred stallion near Cheltenham, Gloucestershire. The stallion has been resident on the premises since its



arrival in the United Kingdom in April 2012 and is reported not to have been used for breeding purposes since then. The animal was tested serologically positive by virus neutralisation test during a routine pre-purchase examination on 20th August 2012. Since then, restrictions have been in place and semen test results were received on 4th October 2012 confirming presence of EAV by virus isolation conducted by the Animal Health Veterinary laboratories Agency, Weybridge, Surrey. The stallion was castrated since and restrictions will be lifted once 6 weeks elapse from the time of castration.

International disease occurrence

Contagious Equine Metritis (CEM)

An outbreak of CEM occurred in Germany during August 2012. Semen from a stallion residing on an EU approved semen collection centre in Germany was found to be positive for CEM. In response to the diagnosis a tracing exercise was carried out to identify the mares inseminated with semen from the infected stallion. The tracing exercise involved the investigation of some mares currently residing in the UK who have since tested negative and restrictions have been lifted.

Eastern Equine Encephalomyelitis (EEE)

The number of equine cases of EEE in the USA currently stands at 204. The total number of cases recorded in each of the states as of 9th November is as follows: Louisiana (58), Mississippi (31), Florida (29), N. Carolina (19), S. Carolina (14), Alabama (12), Georgia (8), Massachusetts (7), New Jersey (6), Tennessee (5), New Hampshire (4), Wisconsin (4), New York (2), Vermont (2), Texas (2) and single cases for Arkansas, Michigan and Pennsylvania.

Equine Infectious Anaemia (EIA)

A number of outbreaks of equine infectious anaemia (EIA) have been reported throughout Europe and North America during this quarter.

The Canadian Food Inspection Agency reported that between 1st July and 30th September 2012, there have been a total of four new EIA positive equines on four separate premises.

Ten outbreaks of EIA have been reported in Germany between 1st July and 24th October. Each outbreak affected single horses which were subsequently euthanased. The source of the outbreak is believed to be a horse used as a blood donor from an equine hospital. A tracing exercise is being carried out and eleven positive horses have been identified.

Two outbreaks of EIA were confirmed in Liege, Belgium on 9th August 2012, both involving single animals. The affected animals have been euthanased and the source of infection is unknown.

Further outbreaks of EIA have been reported in Italy. As of 22nd October Abruzzo, Lazio and Campania have been the worst affected regions.



Several outbreaks of EIA have occurred in Gard, France. The first case was confirmed on 5th September 2012. Testing of in-contact horses and horses traced through horse movements are being carried out and two horses have tested positive. On 4th October one further case was confirmed which has been epidemiologically linked to the previous cases.

Hendra Virus

Three outbreaks of Hendra virus have been confirmed in Queensland between 18th July and 2nd November. Each outbreak comprised single horses. An equine vaccine against Hendra is now available throughout Australia.

West Nile Virus (WNV)

Two outbreaks of WNV have been reported in Croatia involving a total of three horses. The affected horses were unvaccinated, did not show any clinical signs of disease and were identified during serological surveillance by competitive and IgM capture ELISA.

Twelve outbreaks of WNV have been reported in Greece. Seven occurred in the Anatoliki Makedonia kai Thraki region each involving one horse. Four horses that did not show clinical signs tested positive during a serosurveillance exercise. The other three affected horses showed clinical signs of disease. Two tested positive during early September and one on 12th September. Four outbreaks were reported in the Ipeiros region. Three outbreaks involved one horse each and one outbreak involved two horses. The final outbreak was identified in the Kentriki Makedonia region where two horses tested positive during a serosurveillance exercise. In all cases a positive diagnosis was made by competitive and IgM capture ELISA.

The number of equine cases of WNV in the USA stands at 645. The total number of cases recorded in each of the states as of 30th November 2012 is as follows: Texas (110), Louisiana (62), Pennsylvania (50), California (46) and Oklahoma (42), Mississippi (37), Iowa (35), Indiana (30), Florida (17), Colorado and N. Dakota (15 each), Nebraska (14), Kentucky (13), Ohio and S. Dakota (12), Arkansas and Minnesota (11 each), Alabama, Georgia and New Mexico (10 apiece), Idaho and New York (7 apiece), Illinois, Missouri, Montana, New Jersey and Tennessee (6 each), Michigan, S. Carolina and Wyoming (5 each), Nevada, N. Carolina, Utah and Wisconsin (3 each), Connecticut, Maryland, Massachusetts and Vermont (2 each), Arizona, Oregon, Virginia and Washington (1 each).



Defra/ Animal Health Veterinary Laboratories Agency (AHVLA) business

The African Horse Sickness (England) Regulations 2012 were laid before Parliament in October and came into force on 21st November. They include new bespoke powers to control an outbreak of African horse sickness and clarify compensation arrangements. The new controls include fit for purpose control zones, providing more targeted controls than were previously available. This will enable a more effective response, minimising the impact of African horse sickness on the equine industry. The regulations also provide for compensation up to £2,500 for each animal that is culled where test results subsequently show it was negative for African horse sickness.

Equine Infectious Anaemia was confirmed in one horse on a premises in Cornwall on 3 October 2012. As part of the epidemiological investigations it was noted that it had been imported at same time as a previous EIA positive case (in 2010). AHVLA have been trying to locate the remaining 17 horses imported in two consignments on the same day in 2008. Of the 18 horses in these initial consignments, 1 tested positive and was humanely destroyed on 19 October 2012, two have died and 9 were successfully traced with negative results. It is unlikely that the remaining 4 horses can be located.

A meeting between the Chief Veterinary Officers (CVOs) of France, The Republic of Ireland and the UK was held on the 19th November 2012 to review the Tripartite Agreement (TPA). The meeting considered a proposal from the GB equine sector to more closely define the types of horse movements that should be covered by the TPA. Having sought the views of their own stakeholders, the French and Irish delegations did not feel able to support this proposal. This was in part due to concerns that the proposal was too restrictive and prevented the inclusion of all horses with recognised high health status.

However, our partners in the TPA did recognise the concerns that prompted our request to review the current agreement. We have secured an agreement to continue to work with France and Ireland to develop an alternative solution. Greater emphasis will be placed on linking the TPA to existing industry initiatives, such as Codes of Practice which help manage disease risk.

Focus article

In this report we are pleased to include a focus article written by Josh Slater from the Royal Veterinary College. The article provides an overview of the biosecurity measures applied to the 2012 equestrian Olympic and Paralympic Games.

We reiterate that the views expressed in this focus article are the authors' own and should not be interpreted as official statements of Defra, BEVA or the AHT.

Access to all of the equine disease surveillance reports can be made on a dedicated page on the recently updated Animal Health Trust website at http://www.aht.org.uk/cms-display/disease_surveillance.html or via the BEVA and Defra websites:

<http://www.beva.org.uk/news-and-events/news>

<http://archive.defra.gov.uk/foodfarm/farmanimal/diseases/vetsurveillance/reports/listing.htm>



We would remind readers and their colleagues that a form is available on the AHT website for registration to receive reports free of charge, via e-mail, on a quarterly basis. The link for this registration form is available via http://www.aht.org.uk/equine_disease_registration.html.



Virology Disease Report for the Third Quarter of 2012

The results of virological testing for July to September 2012 are summarised in Table 1 and include data relating to Equine Viral Arteritis (EVA), Equine Infectious Anaemia (EIA) and West Nile Virus (WNV) from the Animal Health Veterinary Laboratories Agency (AHVLA), Weybridge. The sample population for the AHVLA is different from that for the other contributing laboratories, as the AHVLA's tests are principally in relation to international trade (EVA and EIA). AHVLA now provides testing for WNV as part of clinical work up of neurological cases on specific request and provided the local regional AHVLA office has been informed.

Table 1: Diagnostic virology sample throughput and positive results for the third quarter 2012

	Number of Samples Tested	Number Positive	Number of Contributing Laboratories
<u>Serological Tests</u>			
EVA ELISA	537	24 [#]	6
EVA VN	135	22 [#]	3
AHVLA EVA VN	921	48	1
EHV-1/-4 CF test	304	24 [*]	2
EHV-3 VN test	3	0	1
ERV-A/-B CF test	139	4 [*]	1
Influenza HI test	210	0 [*]	1
EIA (Coggins)	158	0	3
EIA ELISA	285	0	5
AHVLA EIA (Coggins)	1463	0	1
AHVLA WNV (PRNT)	1	1 ^{**}	1
<u>Virus Detection</u>			
EHV-1/-4 PCR	36	0	3
EHV-2/-5 PCR	36	15	1
Influenza NP ELISA	54	0	2
Influenza Directigen	128	0	2
Influenza PCR	77	1	1
Influenza VI in eggs	1	0	1
AHVLA Influenza PCR	1463	0	1
EHV VI	99	0	1
EVA VI/PCR	0	0	1
AHVLA EVA VI/PCR	9	1	1
Rotavirus	47	4	9

ELISA = enzyme-linked immunosorbent assay, VN = virus neutralisation, VLA = Animal Health Veterinary Laboratories Agency, CF = complement fixation,

HI = haemagglutination inhibition, Coggins = agar gel immuno diffusion test, PCR = polymerase chain reaction, NP = nucleoprotein,

VI = virus isolation, EVA = equine viral arteritis, EHV = equine herpes virus, ERV = equine rhinitis virus, EIA = equine infectious anaemia

= Seropositives include vaccinated stallions, * = Diagnosed positive on basis of seroconversion between paired sera ** = Seropositive due to vaccination



Virological Diagnoses for the Third Quarter of 2012

Equine Influenza

One outbreak of equine influenza (EI) was reported in this quarter and confirmed by the Animal Health Trust.

On 7th September 2012, equine influenza was confirmed in an unvaccinated Thoroughbred-cross gelding in Essex. The horse showed clinical signs of pyrexia, nasal discharge and a cough and a diagnosis was made on the basis of a positive result via PCR on a nasopharyngeal swab. The affected group consists of twelve horses, of which three have been affected.

Equine Herpes Virus-1

Four outbreaks of equine herpes virus-1 (EHV-1) were confirmed and reported in this quarter.

On 3rd August 2012 an outbreak of EHV-1 respiratory disease was confirmed in Shropshire. Four horses from a group of eight tested positive for EHV-1 by PCR of a nasopharyngeal swab. Three of the four horses showed clinical signs of pyrexia, nasal discharge and a cough, and one horse was asymptomatic. The affected horses were unvaccinated and their breeds and ages are unknown.

A case of EHV-1 respiratory disease was confirmed in Staffordshire on 10th August 2012. A six-week-old non-Thoroughbred foal developed signs of fatal respiratory disease with evidence of viral pneumonia seen histopathologically at post mortem examination, which was confirmed with detection of EHV-1 by PCR applied to lung tissues.

EHV-1 neurological disease was presumptively diagnosed in a nineteen year old non-Thoroughbred stallion with signs of ataxia on 1st September 2012 on a premises in the West Midlands region of the UK. Diagnosis was on the basis of high circulating antibody titres in the absence of recent vaccination, with testing conducted at the Animal Health Trust. Control measures are being undertaken in accordance with the HBLB Codes of Practice with laboratory serological and virological testing of 13 in contact animals underway on the affected premises.

On 19th September an outbreak of EHV-1 respiratory disease occurred in the South West of England. The affected animal was a three year old donkey that was not vaccinated against EHV-1/-4. The affected animal showed clinical signs of a bilateral profuse serous nasal discharge and was confirmed positive by PCR on a nasopharyngeal swab. There are 7 in-contact animals of which two have shown clinical signs of a mild serous nasal discharge.



Focus Article: Biosecurity at major equestrian competitions: Equestrian Olympic and Paralympic Games London 2012

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The London 2012 Olympic and Paralympic Equestrian Games were the highest profile event in this year's equestrian calendar and were the culmination of four years of detailed and meticulous biosecurity planning to ensure that all horses arrived, competed and returned home safely and in good health. The goals for the biosecurity programme for London 2012 were to prevent disease entry into the Greenwich Park venue; prevent disease spread within the venue; prevent disease spread outside the venue; and safeguard competition.

There were several unique features of London 2012 which made the disease risks quite different from all recent equestrian Olympic and Paralympic Games. In previous Games, virtually all horses have flown long haul to the Olympic venue requiring a massively complex logistics exercise to coordinate the smooth arrival of horses, feed, tack, equipment, medicines and accompanying staff. In addition, international hygiene regulations and the importation requirements controlling movement of horses from third countries have had to be taken into account. The host country's health regulations have usually required horses to be quarantined (pre export quarantine – PEQ) and closely monitored before they fly and then a further period of monitoring (post arrival inspection – PAI) after arrival before competition begins. Additional vaccination and testing have sometimes been required or recommended, depending on the country of origin. Health certificates and declarations have to be completed, importation regulations complied with and re-export requirements fulfilled before horses can return home. In addition to these regulatory aspects, international air transport of horses brings its own health risks from respiratory diseases such as shipping fever (pleuropneumonia) and muscle diseases such as myopathies. There is a risk that exotic or endemic disease might be imported with the competition horses, triggering an outbreak of disease at the venue which may result in a wider spread disease outbreak if not contained at the venue. Furthermore competition horses may contract endemic or exotic diseases present in the host country. In both situations there would be an impact on the Games and where exotic disease is imported with the competition horses there would be animal health, economic and trade implications for the host country. Planning for each of these contingencies is a major feature of the preparation for all Equestrian Olympic and Paralympic Games.

Almost all horses travelled to London by road from permanent bases or training camps in Europe to Greenwich. Of the 348 horses stabled at Greenwich Park during the Games, only three flew directly to London from third countries and a further nine flew into Europe from third countries and were based temporarily in Europe or the UK for the run up to, and duration of, the Games. The horses that flew directly into the UK for the Games and those that were based temporarily in Europe for competition were from North America and Australia. The fact that almost all horses made relatively short journeys from within Europe meant that some of the key biosecurity controls usually put in place for the Olympic and Paralympic Games (i.e. pre export quarantine and post arrival inspection) were not possible. One of the early decisions made by the biosecurity team was not to impose additional health monitoring requirements over and above those of the standard animal health certificates and TRACES scheme because to do so would undermine the current provisions facilitating horse movements within Europe. Although PEQ and PAI were not



required for most horses, potentially posing an increased disease threat for London 2012, this potential increase in risk was off-set by the high health status of elite competition horses and the fact that they are very closely monitored, have high standards of veterinary health care and, critically, that their movements are documented allowing the disease risk to be profiled for each shipment. Taking all these factors into account, the overall assessment of exotic disease risk in the competition horses was officially classified as very low. However, the impact on the Games could be very high should some of the diseases on the Equestrian Games Risk Register occur and therefore detailed contingency and countermeasures planning was required for each disease. A risk-based approach to biosecurity was taken with exotic and endemic diseases considered in the same biosecurity plan; the plan was put together by a single biosecurity team made up of representatives from the Equestrian Games organisers (LOCOG), equestrian logistics (Peden blockstock) and Government (Defra and AHVLA). This integrated approach to biosecurity was a unique feature of planning for the Games. The biosecurity team's objectives were to generate the Equestrian Games Risk Register, devise countermeasures and contingency plans, and produce standard operating procedures for biosecurity and welfare. The approach was to use a five-stage package of precautionary measures to manage risk: international and country level disease surveillance (provided by the Defra Global Animal Health team); movements before embarkation (provided by the Peden logistics team); health information from point of embarkation (provided by the National Federations); a health screening point before entry into the venue (the Equestrian Staging Facility); isolation facilities at the venue (for containable diseases) and remote to the venue for diseases judged difficult to contain at the venue or which raised suspicion of notifiable disease (Fig 1).

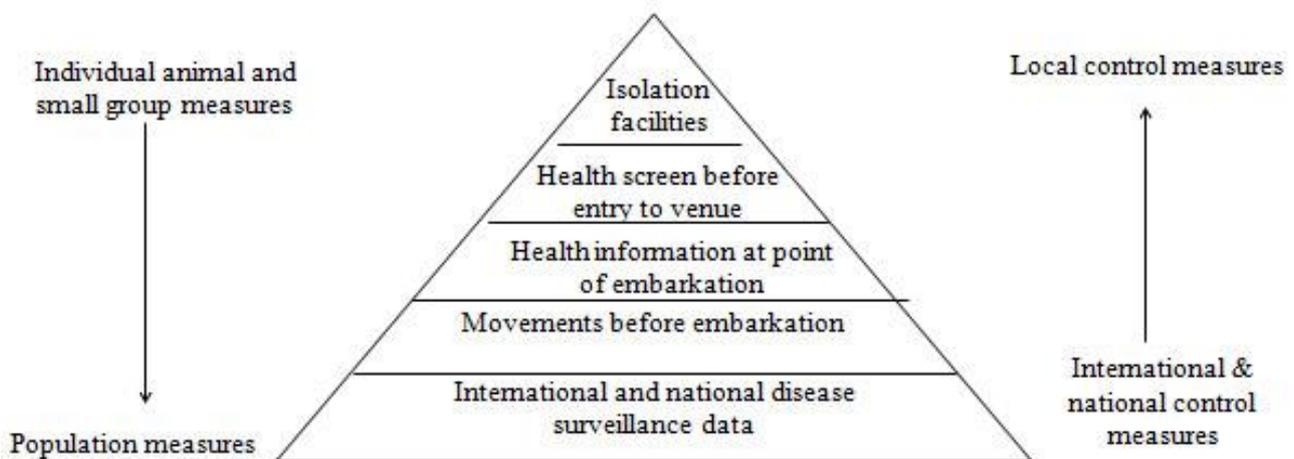


Fig.1. Precautionary measures for venue biosecurity

London 2012 Equestrian Games Risk Register

The Risk Register identified 14 notifiable (exotic) and endemic diseases that posed a threat to the Games and detailed the measures required to mitigate that threat. For London 2012 this required a global view of all diseases which could impact on the successful running of the Games, including non-equine diseases like Foot and Mouth Disease which could impact via restrictions on horse transportation through infected zones or from infected premises where horses were kept dual use agricultural premises.



International and national disease surveillance, coupled with advance knowledge of the origins and movements of horses likely to qualify to come to Greenwich, allowed a risk-based assessment of which disease should be included in the Risk Register. The risk register took into account the impact of diseases occurring in competition horses as well as disease occurring in horses in countries of origin, countries of transit and the UK because each of these could affect the ability of horses to move to the UK and compete, or to move back to their country of origin from the UK; return movement (re-export) had real potential to create problems in the event of a notifiable disease occurring at the venue or in the UK. Based on international surveillance data the current likelihood of each disease occurring was determined; the impact of that disease on competition and logistics was estimated; countermeasures currently in place were listed; and the contingency plan should disease occur was summarised. Combining likelihood and impact for disease allowed an overall assessment of the status of the disease to be made using the red (action needed), amber (monitoring needed with possible action) and green (no action needed) system of annotation. Two notifiable diseases (Equine Infectious Anaemia and African Horse Sickness) and three endemic diseases (Salmonellosis, Equine Herpesvirus Myeloencephalopathy) had amber status; no diseases had red status.

Equestrian staging facility

The Equestrian Staging Facility (ESF) as shown in Fig. 2 was a key precautionary measure in preventing disease entry into the venue. Located 10 k from the venue, the ESF was a purpose-built, temporary facility constructed for security screening of horse transporters, equipment and accompanying personnel as well as health screening of arriving horses. The ESF provided an intervention point to identify horses with clinical signs of disease and divert them to an isolation facility on the edge of venue, or for diseases judged non-containable in the venue isolation stables, to a remote isolation facility located at an equine hospital in north London. On arrival at the ESF, whilst security screening was in progress, horses were unloaded and moved to stable blocks for a veterinary health check. Following verification of identity from the passport and microchip (if present) and the biosecurity team carried out a visual inspection and physical examination of each horse recording rectal temperature and any other clinical signs detected. To assist the clinical decision making process each team had been asked to complete an ESF Arrivals Form detailing rectal temperatures at time of embarkation, journey time and any unexpected or unusual events that had occurred during transport. An important concept that assisted with raising suspicion of exotic disease was that of 'usual' and 'unusual' clinical signs of disease. Detection of a single unusual clinical sign (e.g. haemorrhagic discharges) would trigger suspicion whereas detection of multiple unusual clinical signs would raise suspicion to a higher level.



Fig. 2: The Equestrian Staging Facility (ESF)

Venue biosecurity measures

The venue was divided into three biosecurity zones. The Green Zone was the Greenwich Park main stabling. Access to this area was controlled via accreditation passes but there were no additional restriction on personnel movements. All National Federations were encouraged to follow the simple biosecurity guidance (hand washing, avoiding contact with other horses, limiting horse-to-horse contact and not sharing equipment). There were no special requirements for PPE or boot disinfection. The message to all personnel was that small biosecurity changes have a big impact on health. The Amber Zone was the Equestrian Staging Facility and the venue Veterinary Clinic. Access to these areas was restricted to essential personnel only with requirements for PPE, boot disinfection and cleaning and disinfection. The Red Zone was the venue isolation stables. Access to this area was restricted to essential personnel who had been trained. Stringent biosecurity precautions designed to reduce the risk of disease spread within the stables and reduce the risk of disease spread to outside areas including PPE, boot disinfection and hand washing requirements were in place.

Results: health screening and biosecurity

No significant clinical signs of disease were detected at the ESF or at any point during the Games. This contrasted with the relatively high prevalence (5-10%) of horses with clinical signs, including pyrexia and respiratory signs, following long-haul air transport. The mean rectal temperature of horses at the ESF was 37.8 +/- 0.25oC (range 37.1-38.3; 95% CI 37.76-37.84; n=348). No horses had rectal temperatures above the 38.5oC cut-off specified in the biosecurity SOPs.



Conclusions

London 2012 was very different from previous Olympic and Paralympic Games because most horses travelled by road to London and did not fly internationally. Uniquely, the health and welfare preparations for 2012 involved an integrated response to exotic and endemic diseases by the Defra, LOCOG and equestrian logistics teams. The overall official risk assessment of exotic disease occurring was very low. No significant health or welfare problems were detected during the Games and the data collected from the arrival health checks allowed a reference point for mean rectal temperatures to be established which will inform future planning of biosecurity measures at equestrian competitions. The biosecurity countermeasures and contingency planning from London 2012 are a valuable legacy for future equestrian competitions.



Bacteriology Disease Report for the Third Quarter 2012

A summary of the diagnostic bacteriology testing undertaken by different contributing laboratories is presented in Table 2. For contagious equine metritis (CEM) all 29 HBLB approved laboratories in the UK contributed data.

AHVLA CEMO Data for the period July to September 2012

We are again pleased to include data relating to CEM testing from the Animal Health Veterinary Laboratories Agency (AHVLA), in this quarterly report. The sample population for the AHVLA is different from that for the other contributing laboratories as the AHVLA tests are principally in relation to international trade and/or outbreak investigations.

Strangles

Strangles remains endemic in the UK, especially among parts of the non-Thoroughbred horse population. Diagnoses are confirmed in the UK based on traditional culture of *S. equi* and qPCR on respiratory samples and/or seroconversion using a serological ELISA.

Table 2: Diagnostic bacteriology sample throughput and positive results for the third quarter 2012

	Number of Samples Tested	Number Positive	Number of Contributing Laboratories
CEMO (HBLB)	833	0	29
CEMO (AHVLA)	2676	0	1
<i>Klebsiella pneumoniae</i>[#]	868 ¹	5	29
<i>Pseudomonas aeruginosa</i>	871 ¹	11	29
Strangles*culture	2032	164	21
Strangles PCR	1110	122	2
Strangles ELISA	2004	320 ²	2
Salmonellosis	408	29	20
MRSA	429	3	9
<i>Clostridium perfringens</i>	370	4	8
<i>Clostridium difficile</i> (toxin by ELISA or immunochromatography)	372	5	10
Borrelia (by ELISA)	8	0	1
<i>Rhodococcus equi</i> culture/PCR	524	6	10
<i>Lawsonia intracellularis</i>**culture/PCR	50	10	6

CEMO = contagious equine metritis organism (*Taylorella equigenitalis*); HBLB = HBLB accredited laboratories; [#] =capsule type 1,2,5; AHVLA = AHVLA reference laboratory; **Streptococcus equi* subsp. *equi*; MRSA = methicillin resistant *Staphylococcus aureus*. ** *Lawsonia intracellularis* identified using PCR applied to faeces; ¹ reproductive tract samples only; ² seropositivity may be attributed to disease exposure, vaccination, infection and carrier states.

AHVLA *Salmonella* results

From the incidents involving strains typed by the AHVLA the serovars/phagetypes reported were monophasic *S. Typhimurium* (mST) strains *S. 4,12:i:-* DT193 (1 sample), mST *S. 4,5,12:i:-* DT193 (1), *S. Agama* (1), *S. Anatum* (2), *S. Enteritidis* PT11 (2), *S. Newport* (1) *S. Typhimurium* DT2 (2), *S. Typhimurium* DT104 (1), *S. Typhimurium* DT107 variant (1) and *S. Typhimurium* U302 (1). *S. Agama* and *S. Newport* are likely to originate from a badger reservoir, *S. Enteritidis* PT11 from hedgehogs, *S. Anatum* and *S. Typhimurium* DT2 from wild birds (particularly pigeons in the case of DT2), *S. Typhimurium* U302 from pigs and mST strains from pigs or cattle. For more information from Defra about *Salmonella* in the UK, please visit http://vla.defra.gov.uk/reports/rep_salm_rep11.htm.



Toxic and Parasitic Disease Report for the Third Quarter 2012

A summary of diagnostic toxicosis and parasitology testing undertaken by contributing laboratories is presented in Tables 3 and 4 respectively. Results for toxicosis are based on histopathologically confirmed evidence of disease only (where applicable).

Table 3: Diagnostic toxicosis sample throughput and positive results for the third quarter 2012

	Number of Samples Tested	Number Positive	Number of Contributing Laboratories
Grass Sickness	15	8	4
Hepatic toxicoses	22	2	3
Atypical myopathy	1	1	2*
Tetanus	1	1	2

*Includes contributing laboratories with no cases submitted

Table 4: Diagnostic parasitology sample throughput and positive results for the third quarter 2012

	Number of Samples Tested	Number Positive	Number of Contributing Laboratories
<u>Endoparasites</u>			
Ascarids	3937	55	21
Cyathostomes	2560	376	15
Dictyocaulus	801	5	14
Strongyles	4807	1562	24
Tapeworms (ELISA based testing)	43	35	6
Tapeworms (Faecal exam)	2891	34	15
Trichostrongylus	39	2	1
Strongyloides	2896	380	18
<i>Oxyuris equi</i>	220	5	5
Fasciola	8	0	3
Coccidia	110	3	3
Cryptosporidia	22	0	1
AHVLA <i>Theileria equi</i> (CFT)*	117	2	1
AHVLA <i>Theileria equi</i> (IFAT)**	477	19	1
AHVLA <i>Theileria equi</i> (cELISA)***	210	5	1
AHVLA <i>Babesia caballi</i> (CFT)*	117	0	1
AHVLA <i>Babesia caballi</i> (IFAT)**	477	26	1
AHVLA <i>Babesia caballi</i> (cELISA)***	210	2	1
<u>Ectoparasites</u>			
Mites	22	0	1
Lice	434	0	16
Ringworm	553	97	22
Dermatophilus	240	12	15
Candida	63	0	2

*Complement Fixation Test; CFT suspect/positive samples are tested in IFAT test

Indirect Fluorescent Antibody Test; *competitive Enzyme-linked immunosorbent assay; positive cELISA results are not undergoing confirmatory testing



Grass sickness surveillance data (www.equinegrasssickness.co.uk)

Only four cases of equine grass sickness (EGS) have been reported during the third quarter of 2012 (July - September), of which three occurred in England and one occurred in Scotland. These cases comprised two mares/fillies and two geldings, with a median age of 5.7 years (range 4 – 22 years). Affected breeds were Clydesdale, Percheron x Comtois, Highland x Arab and Warmblood x Cleveland Bay.

Three of the four cases had moved to new grazing on their home premises within four weeks of developing EGS. Only one affected premises had a history of previous EGS cases. Two cases were reported to have acute EGS and two were diagnosed with chronic EGS, of which both were reported to have survived to date. Three cases were diagnosed based on veterinary assessment of clinical signs alone. One case underwent surgery without diagnostic confirmation by biopsy.

It should be noted that the grass sickness surveillance scheme receives data from a wider population in comparison to the data presented in Table 3 and different diagnostic criteria were used.



Report on Post-mortem Examinations for the Third Quarter 2012

East Anglia

A total of 24 cases were examined including 11 aborted fetuses.

Of the aborted fetuses examined this quarter, there were nine cases of umbilical cord torsion, one case of septicaemia and the cause of abortion could not be identified in one case.

Three neurological cases were examined. The first case involved a two year old mare that suffered neuronal spinal cord damage and a myopathy. The second case involved a thirteen year old stallion which was euthanased due to hind limb dysfunction following general anaesthesia. Post mortem examination revealed bilateral Wallerian degeneration of the femoral nerves. The final case comprised an eleven year old Warmblood that was euthanased following ataxia. Spinal cord malacia and bilateral abnormalities of the sacroiliac joint were identified on post mortem examination.

Six horses were examined following gastrointestinal disease. Two cases of cyathostomiasis were identified along with single cases of typhlocolitis, caecal impaction, an ileal abscess and the cause of death for one case was unknown.

One case of neoplasia was reported in this quarter in which an infiltrative carcinoma of the colon was identified.

One musculoskeletal case was examined in which a two year old colt had suffered a fracture of the medial sesamoid of the fetlock of the left forelimb and a partial rupture of the palmar ligament.

Two other cases were reported. A seven month old foal died suddenly and post mortem examination revealed Lawsonia and aspergillus infections. A second case suffered immune-mediated haemolysis.

Home Counties

Thirteen cases were examined in this quarter.

One neurological case was reported in this quarter. Post-mortem examination revealed cervical vertebral malformation.

Ten cases of gastrointestinal disease were reported. Four horses suffered a strangulating lipoma, one of which developed endotoxaemia. An acute gastric rupture was identified in two further cases that were examined. Four other horses were examined and cases of epiploic entrapment, caecal perforation and a small intestinal volvulus were identified. One horse developed colic following an acute carbohydrate overload.

One musculoskeletal case was examined which comprised a horse with laminitis.

One case of hepatic disease was identified. Post-mortem examination revealed hyperlipaemia



South West

Nine cases were examined in this quarter.

One case of neurological disease was reported this quarter. The horse suffered post-operative acute paralysis due to a post-anaesthetic myelopathy.

Three gastrointestinal cases were reported. One horse suffered grass sickness, the second was euthanased following an undetermined post-surgical colic and the final case was euthanased following surgical management of a hernia.

Two respiratory cases were examined. Both of the animals were foals that had tested positive to Equine Herpes Virus 2 and 5 and suffered bronchopneumonia.

Two welfare cases were reported. Examination of the first case revealed enteric inflammation and biliary hyperplasia was identified in the second case.

Two other cases were examined. One comprised of multifocal haemorrhage however a cause could not be identified. The second case involved a donkey that was euthanased following multiple non-healing skin wounds. Post-mortem examination revealed hydatid cysts and chronic laminitis as well as granulomatous skin disease of unknown cause.

Northern England

One case was examined in this quarter.

One gastrointestinal case was examined involving a horse with suspected grass sickness which later proved negative and a diagnosis was not reached.

West Midlands

One case was examined in this quarter.

One other case was examined and a diagnosis of systemic granulomatous disease was made following post-mortem and histological examinations.

Scotland

No cases were reported in this quarter.

Northern Ireland

Five post-mortem examinations were carried out in this quarter.

One aborted fetus was examined from which *E. coli* and *Bacillus licheniformis* were isolated. No other abnormalities were detected.

One neonate was examined this quarter which comprised a three-week-old male that had died following suspected pneumonia. Post-mortem examination and histological examination revealed hepatic necrosis, pulmonary congestion and alveolar collapse.



Two cases of hepatic disease were examined. The first case involved a 15-month-old male that had died following acute diarrhoea. A diagnosis of hepatocellular necrosis was made and *Listeria* was isolated from multiple organs. The second case comprised a 14-year old male pony with a history of chronic liver disease. Post-mortem examination and histological diagnosis revealed changes consistent with toxic hepatopathy. The toxin was not identified but the liver changes were not consistent with ragwort intoxication.

One other case was examined this quarter. An eight-year old female was found dead with a history of suspected yew intoxication. On post-mortem examination yew leaves were identified in the gastrointestinal tract.



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**We would welcome feedback including contributions on focus articles
and / or case reports to the following address:**

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