



AHT / BEVA / DEFRA EQUINE QUARTERLY DISEASE SURVEILLANCE REPORT VOLUME: 7, No.3: JULY - SEPTEMBER 2011

Highlights in this issue:

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- West Nile Virus situation in Europe
- Equine Influenza in the United Kingdom
- Focus article: International Disease Monitoring and Risk Assessment at DEFRA



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.



Animal *Health* Trust





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Introduction

Welcome to the third quarterly equine disease surveillance report for 2011 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

Equine Herpes Virus-1 (EHV-1)

As of 21st November 2011, two outbreaks of Equine Herpes Virus-1 (EHV-1) have been reported in the West of England and confirmed by the Animal Health Trust.

The first outbreak, confirmed on 18th November, involved two clinically affected horses. Both horses were sports horse mares with foals at foot. One of the affected mares was euthanased after becoming recumbent; and the second horse showed signs of ataxia. Diagnosis was made on the basis of virus isolation and/or PCR on nasopharyngeal swabs and heparinised blood samples.

The second outbreak, confirmed on 19th November involved a vaccinated, non-Thoroughbred mare which had aborted. Since foetal tissues were unable to be recovered for post-mortem examination and testing, a diagnosis was made by positive PCR on placental tissues. The affected mare was kept with three other mares that are being closely monitored in isolation.

No links have been made between the two reported outbreaks with respect to their geographical locations.

Equine Influenza (EI)

Equine influenza continues to be of importance within the United Kingdom. In this issue we report on several small outbreaks that have occurred in this quarter, mainly in unvaccinated horses. As of 21st November 2011, three further outbreaks of EI have been reported by the Animal Health Trust, of which two occurred in October.

On 14th October, EI was confirmed in a horse in East Sussex. The affected horse, an un-vaccinated four-year old gelding, had recently been imported from Ireland and had travelled with a horse that showed clinical signs consistent with equine influenza. The affected horse showed clinical signs of a harsh cough, mucoid nasal discharge and mild malaise; and a diagnosis was made on the basis of a positive result on nucleoprotein ELISA on a nasopharyngeal swab. Two further horses on the premises developed similar clinical signs and have been isolated.

On 27th October equine influenza was confirmed in a horse in Devon. The diagnosis was made on the basis of a positive result via ELISA on a nasopharyngeal swab. The affected premises consisted of number of horses that had shown clinical signs of coughing, nasal discharge and malaise.

Finally, two horses from East Renfrewshire were confirmed with equine influenza on 1st November 2011. Both horses showed clinical signs of coughing, nasal discharge



and lethargy. The diagnosis was made on the basis of positive results via ELISA on nasopharyngeal swabs.

These 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](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.

International disease occurrence

Hendra Virus

Hendra virus has been identified in Australia for a number of years. There were 14 separate incidents of Hendra reported in horses between 1994 and 2011, where one case was reported in New South Wales and the other cases occurred in Queensland.

Since 30th June 2011 Hendra virus has been confirmed as the cause of death of 21 horses on 17 properties in two states in Australia. Cases have included ten horses on eight properties in New South Wales; and eleven horses on nine properties in Queensland. Affected horses have been seen to show a range of clinical signs such as pyrexia, ataxia, wide-based stance, dull demeanour and an increase in heart and respiratory rates.

Glanders (*Burkholderia mallei*)

Glanders, a bacterial disease caused by *Burkholderia mallei*, has been eradicated from Europe for a number of years. Clinical signs of Glanders include nodular and ulcerative lesions of the skin, nasal septum and lungs and the disease can be transmitted between horses by direct and indirect contact. Since the incubation period of the disease is variable and clinical signs may not be recognised in the chronic form of the disease; sub-clinically infected horses are the most important source of infection. Prevention of the introduction of the disease relies on import restrictions on horses travelling from affected areas.

On the 11th of July 2011 the Lebanese Veterinary Office notified the World Organisation for Animal Health (OIE) of an outbreak of Glanders that first occurred in February 2011 affecting at least 25 horses, with laboratory diagnosis confirmed in May 2011. The outbreak was believed to have been related to trans-boundary animal movements. With respect to this outbreak, on July 25th, based on information reported on the website Animal Health Online, ProMEDmail reported that one horse that had been recently Imported into Europe from the Republic of Lebanon had tested seropositive for glanders, initiating control measures (<http://www.promedmail.org/direct.php?id=20110724.2227>). However, this initial result was subsequently shown to be a false positive result by the Glanders OIE reference laboratory in Germany and restrictions were then lifted (<http://www.promedmail.org/direct.php?id=20110729.2282>).

On 21st August 2011 a further outbreak of Glanders was reported. The OIE reported an outbreak affecting three horses in Kabul, Afghanistan. The diagnosis was confirmed by bacteriology and the affected horses were euthanased. It is believed that the horses had been brought into the country before June 2011. They arrived from Pakistan in a group consisting of 130 horses.



Equine Herpes Virus-1

The California Department of Food and Agriculture have reported four outbreaks of equine herpes virus-1. An outbreak reported on 24th August 2011 occurred in Sonoma County, California, USA. It involved a 15-year-old Oldenburg mare that was treated at a veterinary referral hospital. Two additional horses with pyrexia tested positive via nasal swabs. On 13th September an outbreak was reported in Tuolumne County, California, USA with one mare affected and treated at a veterinary referral hospital. On 15th September, two further outbreaks were reported. One outbreak occurred in San Joaquin County, California, USA comprising two horses showing clinical signs of disease. It is reported that the horses were exposed to the virus on visiting Tuolumne County. The second outbreak occurred in Tuolumne County, California, USA and involved seven horses. Five horses showed neurological signs of disease and the remaining two horses were pyretic. One horse showing severe neurological signs was euthanased. Confirmed cases have been isolated and any in-contact horses have been quarantined.

In Orne, France, on 20th September 2011, the *Réseau d'Epidémiologie-Surveillance en Pathologie Equine* (RESPE) reported a single case of EHV-1 abortion. The affected horse was a Thoroughbred breeding mare which had been vaccinated. A positive diagnosis was made by PCR of foetal organs.

Eastern Equine Encephalomyelitis (EEE)

During the quarter, the number of equine cases of EEE in the USA increased from 22 to 41 up to 28th September 2011. Conspicuous in this increase in the national total has been the surge of cases in Wisconsin (20), with 15 additional cases confirmed since September 8th. Other states reporting diagnosed cases of the disease include New York (11), Florida and Louisiana (3 apiece), Michigan (2), Mississippi and N. Carolina (with 1 case each).

Equine Infectious Anaemia (EIA)

Several EIA positive horses were reported in Romania on 8th July 2011 by the RESPE. They were confirmed by serology between 26th May and 23rd June 2011 and based on information received from the French Ministry of Food, Agriculture and Fisheries. Eight positive EIA horses have been reported in the district of Brasov, with five horses affected on one premise and single horses affected on three other premises. Nine positive EIA horses have been reported in the district d'Alba with eight horses affected on one premise and a single horse affected on another premise. Five positive EIA horses have been reported in the district Vaslui, with two horses affected on one premise and single horses affected on three other premises. It is not clear whether the affected horses showed clinical signs or have been euthanased. On 26th July 2011 RESPE reported further cases of EIA in Romania. Six horses were confirmed positive by serology in the district d'Alba in Romania. In both reports, sampling was performed in the framework of the national programme of surveillance.

On 26th August 2011 the International Society of Infectious Diseases reported an outbreak of EIA in Johnson County Arkansas. The outbreak occurred on a ranch where 38 horses were euthanased and two other horses died. It has been reported that there is no indication of disease transmission beyond the affected premises.

West Nile Virus (WNV)

This quarter has seen numerous reports of West Nile Virus. Italy in particular has seen a recurrence of the disease which was last reported in 2009. Thirty three outbreaks have been reported between 13th September and 20th November 2011.



Outbreaks have occurred nationwide as well as in Italy and Sardinia.

Between early August and the end of the quarter, six outbreaks of WNV have been reported in Greece which have occurred mainly in the Attiki and Thessalia areas of the country. A single outbreak has also occurred in the Cadiz, Spain affecting only one horse.

There have been a number of cases of WNV reported in the USA. Since 8th September 2011, the national total of equine cases of WNE has increased from 21 to 56, with the single greatest increase being seen in California (11) and Pennsylvania (10). Totals for other states include Arizona (2), Delaware (1), Florida (1), Georgia (3) Indiana (2), Iowa (1), Kentucky (1), Massachusetts (1), Minnesota (1), Mississippi (1), Nebraska (1), Nevada (1), New York (2), N. Dakota (5), Ohio (4), Oregon (2), Texas (2), Virginia (1) and Wisconsin (3).

Defra/ Animal Health and the Veterinary Laboratories Agency (AHVLA business

Exotic diseases text alerts

Animal Health and the Veterinary Laboratories Agency (AHVLA) provide registered users with the latest news specific to exotic notifiable farm animal and/or equine disease outbreaks in Great Britain by means of alerts that can be sent to the users by a pre-recorded voice message, mobile text, fax and email. Text alerts are free of charge. If you wish to subscribe to this service please visit the following website http://animalhealth.system-message.co.uk/AH_subscribe_index.php.

Animal Health and Welfare Board for England (AHWBE)

On 28th October 2011 Agriculture Minister, Jim Paice, provided details of the first four non-executive members of the new Animal Health and Welfare Board for England (AHWBE), which was first announced on 26th April 2011. The AHWBE brings experts from outside Government together with the Chief Veterinary Officer and civil servants to make direct policy recommendations on strategic policy affecting the health and welfare of kept animals such as farm animals, horses and pets.

The new members are Stewart Houston (background in the pig industry), Stuart Roberts (beef and meat production), Mark Tufnell (agricultural business management) and Tim Morris (Equine Science and Welfare at the British Horseracing Authority) and they join chair Michael Seals in developing the Government's strategic Animal Health and Welfare policy. The AHWBE has since met on two occasions on 8th November and 6th November and notes from the meetings are available on Defra's website at <http://www.defra.gov.uk/ahwbe/>.

Focus article

In this report we are pleased to include a focus article by Drs Helen Roberts and Andy Paterson from the UK's Animal Health and Veterinary Laboratories Agency (AHVLA), based in London. The article provides an outline of the important but often overlooked work conducted by UK government veterinary authorities on monitoring the ever changing situation with international equine disease and assessing the risks that this poses to UK human and equine health, as well as trade in horses and equine-related products.



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 2011

The results of virological testing for July to September 2011 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 Veterinary Laboratories Agency (VLA), Weybridge. The sample population for the VLA is different from that for the other contributing laboratories, as the VLA's tests are principally in relation to international trade (EVA and EIA). VLA now provides testing for WNV as part of clinical work up of neurological cases on specific request and provided the local DVM has been informed.

Table 1: Diagnostic virology sample throughput and positive results for the third quarter 2011

	Number of Samples Tested	Number Positive	Number of Contributing Laboratories
Serological Tests			
EVA ELISA	715	26*	6
EVA VN	115	28#	4
VLA EVA VN	851	0	1
EHV-1/-4 CF test	326	2*	1
EHV-3 VN test	11	3	1
ERV-A/-B CF test	190	0*	1
Influenza HI test	211	0*	1
EIA (Coggins)	114	0	3
EIA ELISA	309	0	6
VLA EIA (Coggins)	1380	0	1
VLA WNV (PRNT)	2	0	1
<u>Virus Detection</u>			
EHV-1/-4 PCR	32	0	2
EHV-2/-5 PCR	26	13	1
Influenza NP ELISA**	108	2	1
Influenza Directigen	116	0	2
Influenza VI in eggs	0	0	1
EHV VI	74	2	1
EVA VI/PCR	0	0	1
VLA EVA VI/PCR	13	0	1
Rotavirus**	40	8	7

ELISA = enzyme-linked immunosorbent assay, VN = virus neutralisation, VLA = 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

** = The relatively high number of NP ELISA tests performed is largely due to requirements for international equine movement. All horses travelling to Australia must have 2 NP ELISA tests performed prior to travel. The figures above include tests performed for international trade purposes.



Virological Diagnoses for the Third Quarter of 2011

Equine Influenza

Five outbreaks of equine influenza (EI) were reported in this quarter.

Outbreak descriptions

As previously reported, on 25th July 2011 EI was diagnosed in a horse in Wiltshire, UK. Diagnosis was confirmed by the Animal Health Trust on the basis of seroconversion to H3N8 influenza virus in a haemagglutination inhibition (HI) in a non-vaccinated, cross bred horse. The affected horse showed typical clinical signs of frequent coughing at rest and nasal discharge.

On 11th August EI was confirmed in a pony in North Lanarkshire, Scotland. Diagnosis was made on the basis of a positive result on nucleoprotein antigen ELISA on a nasopharyngeal swab taken from a non-vaccinated 9-year-old pony mare that had had signs of pyrexia, coughing and mucopurulent nasal discharge for 2 days before being sampled. The affected pony is a single animal on a private premise that had been very recently acquired from a dealer's yard.

On 17th August 2011 the Animal Health Trust confirmed equine influenza in a horse in Surrey, England. Diagnosis was made on the basis of a positive result on nucleoprotein antigen ELISA on a nasopharyngeal swab taken from a 7-year-old Cob gelding of unknown vaccination status that had signs of pyrexia, coughing and mucopurulent nasal discharge for several days before being sampled. The affected animal was on a livery yard on which another horse had developed similar clinical signs within 48 hours of arrival from a dealer's yard. Several others horses on the yard have since been reported with clinical signs.

On 2nd September 2011 Animal Health Trust confirmed equine influenza in a horse in Gloucestershire, England. Diagnosis was confirmed by the Animal Health Trust on the basis of seroconversion to H3N8 influenza virus. The affected horse was a three-year old unvaccinated thoroughbred.

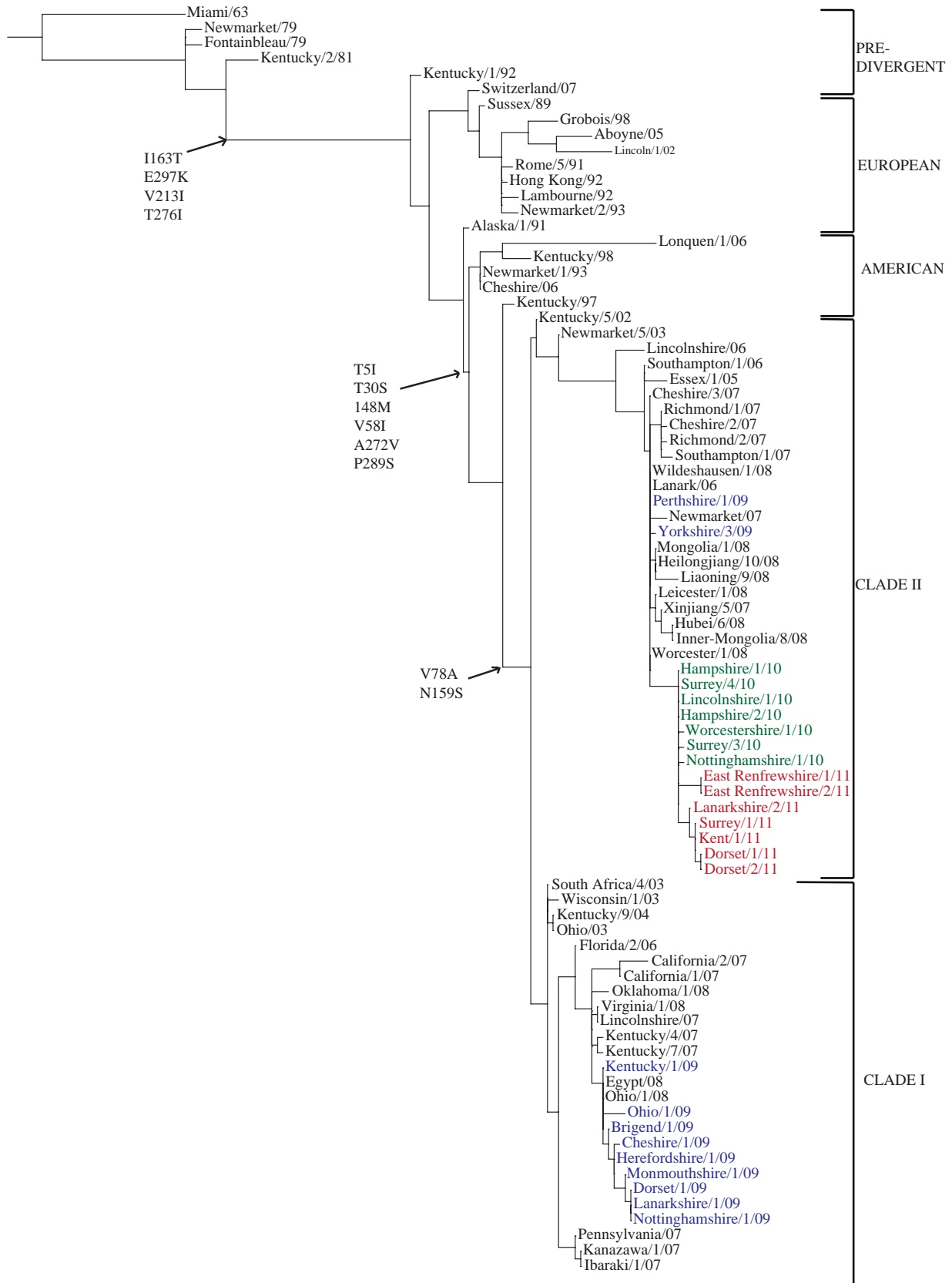
On 28th September 2011 the Animal Health Trust confirmed a case of equine influenza (EI) in North Lanarkshire, Scotland, UK. The affected animal was a five-month-old filly showing clinical signs of pyrexia, cough, mucopurulent nasal discharge and tachypnoea. The diagnosis was made on the basis of a positive nucleoprotein antigen ELISA result for a nasopharyngeal swab.

Equine influenza virus characterisation

The equine influenza virus responsible for the outbreak in North Lanarkshire, Scotland has been preliminarily characterised as an H3N8 clade 2 Florida sublineage virus, as shown in Fig. 1.



Fig. 1: Equine influenza phylogenetic tree based on haemmaglutinin (HA)



Bacteriology Disease Report for the Third Quarter 2011

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.

VLA CEMO Data for the period July to September 2011

We are again pleased to include data relating to CEM testing from the Veterinary Laboratories Agency (VLA), in this quarterly report. The sample population for the VLA is different from that for the other contributing laboratories as the VLA 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 2011

	Number of Samples Tested	Number Positive	Number of Contributing Laboratories
CEMO (HBLB)	799	0	29
CEMO (VLA)	2031	0	1
<i>Klebsiella pneumoniae</i> #	803 ¹	0	29
<i>Pseudomonas ruginosa</i>	802 ¹	15	29
Strangles*culture	1641	125	17
Strangles PCR	1172	91	2
Strangles ELISA	1145	249	1
Salmonellosis	421	7	18
MRSA	550	2	12
<i>Clostridium perfringens</i>	211	9	6
<i>Clostridium difficile</i> (toxin by ELISA or immunochromatography)	202	23	7
Borrelia (by ELISA)	17	2	1
<i>Rhodococcus equi</i>	743	7	7
<i>Lawsonia intracellularis</i> **	43	10	2

CEMO = contagious equine metritis organism (*Taylorella equigenitalis*); HBLB = HBLB accredited laboratories; # =capsule type 1,2,5; VLA = VLA reference laboratory; **Streptococcus equi* subsp. *equi*; MRSA = methicillin resistant *Staphylococcus aureus*. ** *Lawsonia intracellularis* identified using PCR applied to faeces; 1 reproductive tract samples only ****= an overseas sample from Italy

VLA *Salmonella* results

From the strains typed by the VLA the serotypes reported were *S. Typhimurium* 8 (2 samples), *S. Typhimurium* RDNC (1 sample) and *S. Enteritidis* 6a (1 sample).

The following definition of an incident applies: "An incident comprises the first isolation and all subsequent isolations of the same serovar or serovar and phage/definitive type combination of a particular *Salmonella* from an animal, group of animals or their environment on a single premises, within a defined time period (usually 30 days)."

For more information from Defra about *Salmonella* in the UK, please visit

http://vla.defra.gov.uk/reports/rep_salm_rep07.htm.



Focus Article: International Disease Monitoring and Risk Assessment at DEFRA

Helen C. Roberts & Andy Paterson, Animal Health and Veterinary Laboratories Agency (AHVLA), London, UK

The normal business of the movement and trade in equidae and equine products increases the likelihood of introducing an exotic disease to the UK. An introduction of such a disease would have a significant impact on 1) the health and welfare of the UK equine population, 2) human health in the case of, for example, glanders and the equine encephalitides, 3) the UK's ability to trade in live equidae and equine-related products and 4) the reputation of the UK equine industry, wider UK trade and Defra.

The simplest way to reduce such risks would be to ban or severely limit all such movements, but such a ban would totally disrupt the normal business of the equine industry – racing, eventing and breeding etc., and from this it is apparent that all real-world disease control is a balancing act related to the appetite for risk amongst all parties in industry and government.

As such there is an implicit acknowledgement by the industry that normal activities increase the level of risk. However, these risks are reduced by compliance with the conditions on the health certificates and movement licences required; these mitigating conditions are normally either: 1) originating from an area known to be free from disease; 2) a period of time spent in a known location under official supervision; and 3) laboratory testing, confirming that the animal is likely to be free from disease.

It is obvious that diseases do not arise spontaneously and must come from an affected region or other source, and for this reason it is important to be aware of developments in the world-wide disease situation. Occasionally (and often unpredictably) the risk level increases when trading practices change, a new pathogen, or a particularly high risk route is identified; on top of which, there is also the need to consider the long term effects on risk associated with climate change.

International Disease Monitoring and Risk Assessment is a small team consisting of Animal Health and Veterinary Laboratories Agency (AHVLA) scientists and vets working on exotic disease risks on an ad hoc basis within the Veterinary & Science Policy Advice team at Defra. This core of specialist technical advisors provides expertise to produce a variety of reports on current disease risk levels for the UK. This work is all about assessment of risk, and communication of that risk in an easily understood format.

There are four main activities:

1. **Immediate reactive preliminary outbreak assessments (POAs)** to provide information e.g. to interpret the dourine situation in Italy.
2. **Qualitative risk assessments (QRAs)** to assist policy development e.g. the movement of clade 2 i. WNV in Europe.
3. **Informative regular summary reports** for stakeholders e.g. worldwide disease summaries to assist with planning for the 2012 Olympics, and summaries to inform targeting by HMRC Customs officials at ports and airports.
4. **Long term strategic work for policy development** looking at climate change related issues.



The information published in each report comes only from officially published and verified sources such as OIE and EU, although useful intelligence is gathered from a wide informal network of personal contacts and sources such as PROMED.

The risk of incursion to the UK varies according to the country of origin, the disease of concern and the presence of risk factors such as competent vector species, and risk mitigation measures already in place. If the risk with the measures currently in place, is assessed as being greater than negligible, it may be necessary to put in place additional measures e.g. pre-export testing / quarantine or targeted post-import testing.

The required risk mitigation measures are decided upon in collaboration with disease control and import policy colleagues, AHVLA, national disease experts, UK Border Agency or Local Authority officials. The risk mitigation actions chosen are relevant for the country of origin and take into account measures taken at the EU level. These actions may be updated periodically depending information or intelligence. Actions may include increasing level of checks on personal imports at the border; tracing, restricting and testing recent imported live animals; or increasing the level of biosecurity and awareness on animal holdings.

According to the OIE guidelines (OIE, 2011) which provide recommendations and principles for carrying out risk assessments, such analyses should be transparent, objective and defensible if they are to be used to provide clear reasons to an exporting country for the refusal to import, or for the imposition of additional measures. Different approaches are used – qualitative or quantitative – to estimate the risk associated with a particular hazard.

In the UK, it is much less common to undertake quantitative analyses (where the output is a probability with confidence intervals), which are more suited to supporting strategic decision making, as they are usually a lengthy process requiring several months and detailed datasets, and experience has shown that the results of these can be difficult to communicate to stakeholders. Instead, Defra conducts rapid qualitative risk assessments which can be used for routine and responsive decision making, and are designed to aid communication and understanding to non-technical decision makers.

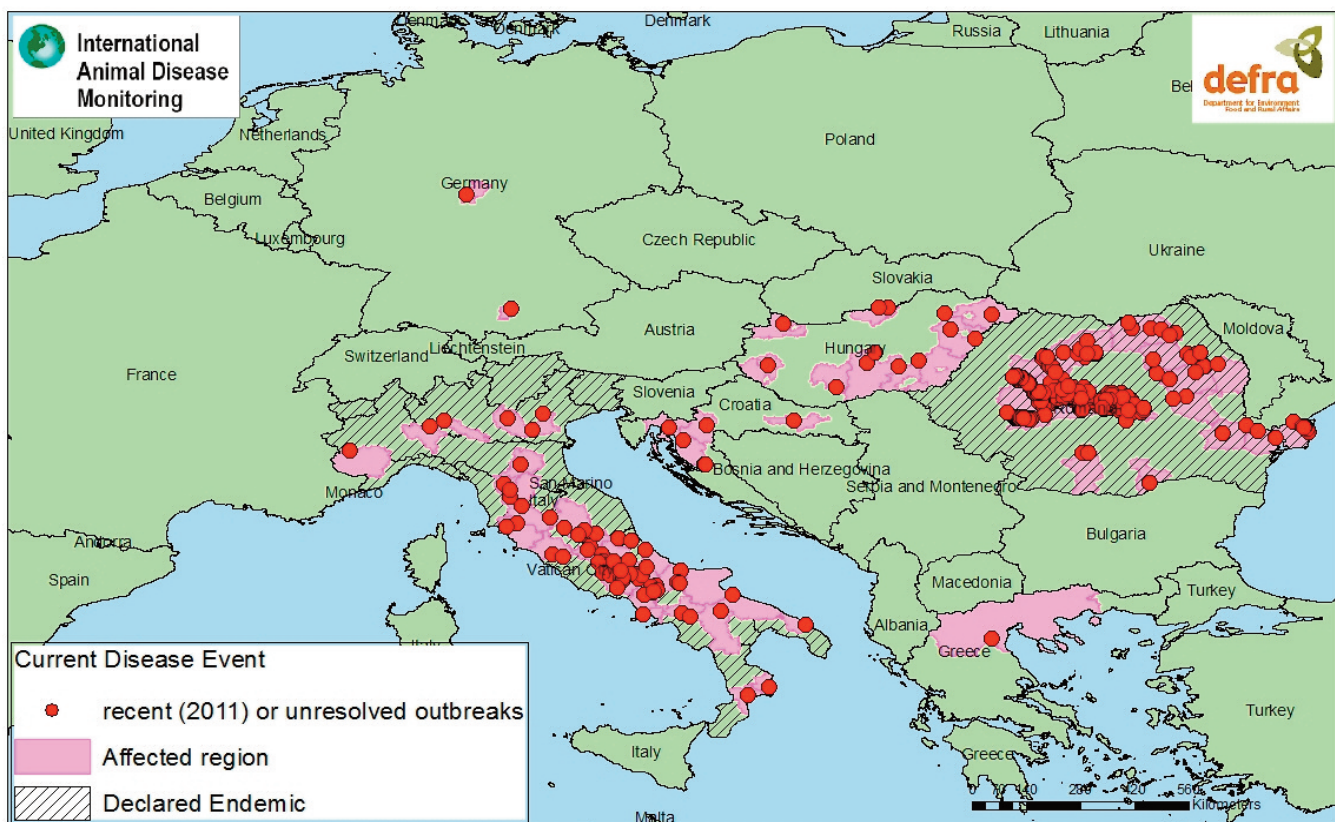
These qualitative risk assessments provide a structured account of 1) the hazard giving rise to the risk, 2) the factors increasing or decreasing the likelihood of the associated adverse events taking place, and 3) knowledge gaps; and thereby allow informed decision to be made.

It is generally accepted that there are five components of a risk analysis:

- 1) **Hazard Identification:** categorising the biological or pathogenic agent associated with the importation of a commodity e.g. African horse sickness virus. Hazards identified are appropriate to the species, commodity, presence in the exporting country and whether subject to control measures. If this evaluation does not identify a hazard at this stage, the risk assessment process can stop.
- 2) **Risk Assessment (RA):** based on scientific evidence, the RA should also document uncertainties, data gaps and assumptions. Steps in the RA are:
 - a. Entry Assessment (the pathway responsible for introducing the agent into an environment);

- b. Exposure Assessment (pathways whereby animals or humans are exposed to the hazard, within the importing country);
 - c. Consequence Assessment, whether public health consequences, surveillance and control costs, production losses, this can involve a full economic impact assessment.
- 3) **Risk Estimate:** Taking into account the entire pathway, the final output is usually a risk level described in agreed, standardised terms as defined by the European Food Safety Authority (EFSA) (negligible, very low, low, medium or high). It is important for risk communication that standardised terms are used and understood by all parties.
- 4) **Risk Management:** for risk levels that are considered to be greater than negligible, it may be considered necessary to implement some form of risk mitigation measures.
- 5) **Risk Communication:** is an essential and often overlooked comment of risk analysis. Pictures speak a thousand words and one of our most important forms of communication is the use of maps. For example, below is the latest map showing the Equine Infectious Anaemia situation in Europe. Defra publishes all risk assessments on the Defra website (<http://archive.defra.gov.uk/foodfarm/farmanimal/diseases/monitoring/index.htm>). Such maps are used for Communication through the Equine Core Group, which is one of Defra's most important links with the industry.

Figure 1: Equine infectious anaemia outbreaks in Europe in 2011



Actual Scale 1:13,000,000
Date prepared 29/11/2011
Map prepared by IDM

Equine Infectious Anaemia outbreaks in Europe in 2011





While most of the International Disease Monitoring risk assessments are carried out as a result of a change in the animal health situation in another country, assessments are also carried out in response to future policy change or changing import regulations and measures (taken at the EU, rather than UK level). A recent FVO mission to the UK commented as follows:

“The very favourable animal health situation for equidae in the UK is substantiated by an elaborate risk-based surveillance, prompt declaration and intense control activities in case of outbreak.” FVO Mission to evaluate the implementation of animal health rules in respect of intra-union trade in equidae and equine semen, embryos and ova. June, 2011 (European Commission, 2011).

Defra continues to provide disease monitoring and risk assessment in an effort to maintain this favourable animal health situation.

References

OIE (2011) Terrestrial Animal Health Code: Chapter 2.1 Import Risk Analysis.

http://www.oie.int/index.php?id=169&L=0&htmfile=chapitre_1.2.1.htm Accessed 15/11/2011.

European Commission (2011) Animal Health – live equidae, semen, embryos and ova – intra-Union trade.

http://ec.europa.eu/food/fvo/rep_details_en.cfm?rep_id=2760 Accessed 15/11/2011.



Toxic and Parasitic Disease Report for the Third Quarter 2011

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 2011

	Number of Samples Tested	Number Positive	Number of Contributing Laboratories
Grass Sickness	26	21	2
Hepatic toxicoses	16	2	2
Atypical myopathy	4	0	2
Tetanus	0	0	0

Table 4: Diagnostic parasitology sample throughput and positive results for the third quarter 2011

	Number of Samples Tested	Number Positive	Number of Contributing Laboratories
Ascarids	2641	67	16
Cyathostomes	2189	483	13
Dictyocaulus	400	13	8
Strongyles	3942	1098	21
Tapeworms (ELISA based testing)	13	7	3
Tapeworms (Faecal exam)	1711	13	13
Trichostrongylus	26	3	2
Strongyloides	2076	297	16
<i>Oxyuris equi</i>	173	0	7
Fasciola	140	12	3
Coccidia	100	3	4
Cryptosporidia	0	0	0
VLA <i>Theileria equi</i> (CFT)*	96	2	1
VLA <i>Theileria equi</i> (IFAT)**	434	20	1
VLA <i>Theileria equi</i> (cELISA)***	123	5	1
VLA <i>Babesia caballi</i> (CFT)*	96	3	1
VLA <i>Babesia caballi</i> (IFAT)**	434	1	1
VLA <i>Babesia caballi</i> (cELISA)***	123	0	1
<u>Ectoparasites</u>			
Mites	23	0	1
Lice	533	1	16
Ringworm	692	218	20
Dermatophilus	553	21	15
Candida	50	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):

A total of 16 equine grass sickness (EGS) cases have been reported to the surveillance scheme for the third quarter (July - September 2011), of which 10 cases occurred in England, three cases occurred in Scotland, one case occurred in Wales and the location of two cases was not reported. The median age of affected horses was 6 years (range 1 – 15 years). A greater proportion of cases occurred in females: 56% of cases were mares/fillies (n=9), 25% (n=4) were geldings and sex was not recorded for three cases.

Over half of affected horses (56%, n=9) were purebreds, predominantly native pony breeds (n=3) and Cob breeds (n=3) and 25% (n=4) were crossbred. Breed was not reported for the remaining three cases.

Fifty-six percent of cases (n=9) were reported to have acute EGS, 31% (n=5) were diagnosed with chronic EGS. Clinical form (subacute/chronic) of EGS was not reported for two cases. Of the five horses with chronic EGS, two were reported to have been euthanased due to the disease.

Diagnostic information was provided for the majority of cases (81%, n=13); of these, 38% (n=5) were diagnosed based on clinical signs alone. Six horses underwent surgery and diagnostic confirmation obtained by biopsy examination in the majority of cases (83%, n=5); one horse that underwent surgery also had a subsequent post-mortem examination. In total, post-mortem examination was performed in three cases, of which one had biopsy samples obtained for confirmation of diagnosis by histopathology.



Report on Post-mortem Examinations for the Third Quarter 2011

East Anglia

A total of 44 cases were examined including 14 aborted fetuses.

Of the aborted fetuses examined this quarter, umbilical cord torsion was suspected as the precipitating cause in 11 of 18 cases; and one foetus also showed evidence of placental separation. There was one further case of placental separation and one case of placental insufficiency. One case of septicaemia was identified in a foetus. There were two cases of placental examination in absence of a submitted foetus, following abortion. One of these was identified to have placental separation with a vascular flow anomaly and the second suffered an acute placental necrosis. Finally there were two aborted fetuses in which a cause of death could not be determined.

There was only one case of neonatal death reported in this quarter, associated with sepsis and identified on gross post mortem and histological findings.

Three cases were examined following neurological disease. The first case showed signs of neck pain and revealed Wallerian degeneration; and meningoencephalitis was identified in the second case. The third case involved a racehorse bred in the USA who showed poor performance and progressive neurological deficits. A diagnosis of equine protozoal encephalomyelitis was made.

One horse was examined following gastrointestinal disease where the cause of death was identified to be inflammatory bowel disease.

There were three respiratory cases reported. The first case involved a Shire foal who died from bacterial pneumonia and the second case involved a horse with pulmonary thrombosis. The third case involved a cob who had been found drowned in a lake.

Two cases of neoplasia have been reported and confirmed by histology. The first involved a horse with multisystemic lymphosarcoma which affected the skin, upper respiratory tract and lymph nodes. The second case identified a renal tumour.

The four musculoskeletal cases reported in this quarter include a case of chronic laminitis in an aged pony, a vertebral fracture in a thoroughbred following a fall, a case of degenerative joint disease with uncontrollable pain; and a case of osteomyelitis.

Three cases of hepatic disease were identified. Ragwort toxicity was identified in one case, a second case involving a Shetland pony identified hepatic toxicity with an uncertain cause and finally a case of hepatitis was identified in a horse.

Six Cardiovascular cases were reported. One horse suffered a ruptured aorta and a second suffered an iliac artery rupture following a pelvic fracture. One horse suffered vasculitis and endotoxaemia was identified in three cases.

Other reported cases include a horse with a rectal tear, a horse with peritonitis, an aged pony with laminitis and finally a horse with an undetermined cause of death



Home Counties

Twenty cases were examined in this quarter.

An aborted foetus was examined and found to have fractured skull and one neonatal death from which *Rhodococcus* was isolated.

One neurological case was reported in this quarter which was euthanased following ataxia affecting all four limbs.

Eleven cases of gastrointestinal disease were reported. Six horses were euthanased due to colic, and the remaining five cases were euthanased due to equine dysautonomia, septic peritonitis, intestinal perforation, ileo-caecal obstruction caused by *Anoplocephala* and a case of volvulus.

A neoplasia case was reported in which a colonic adenocarcinoma was identified on post mortem.

One respiratory case of fibrinous pleuropneumonia was reported on post mortem and histological examinations, bacterial culture.

A horse with hepatic disease was identified to have chronic fibrotic changes in the liver, consistent with chronic hepatotoxicity which was likely to be pasture related.

Finally three further cases were examined comprising one welfare case in which the cause of death was not identified, one case of yew intoxication and one horse with a ruptured mediastinal artery.

South West

Ten cases were examined in this quarter.

One donkey was examined following gastrointestinal disease in which ulcerative colitis was identified and a horse with colic was diagnosed with a strangulated small intestine around a benign stromal tumour. The horse developed endotoxaemia after surgical resection of the small intestine.

One case of musculoskeletal disease was reported in a horse. A post-mortem examination revealed cervical arthropathy.

A gross post-mortem examination of a horse with respiratory disease revealed pleuritis and a gross post-mortem of a horse revealed cardiac disease with no definitive cause reported.

One welfare case was reported in which a shot gun wound was identified. Three further cases were also reported. Two cases consisted of donkeys identified to have dental disease and sarcoids respectively; and the third case involved a horse with a splenic abscess.

One other case was reported comprising a donkey with laminitis.



Northern England

Four cases were examined in this quarter.

Two gastrointestinal cases were reported on post mortem examination. The first suffered a gastric rupture and colonic ulceration and perforation was reported in the second case.

One musculoskeletal case was reported which on post mortem identified septic pedal osteitis and septic collateral ligament damage.

One cardiac case was reported which identified mitral valve insufficiency confirmed by ante-mortem ultrasonography and post mortem examination.

West Midlands

Two cases were examined in this quarter.

Post-mortem examination was carried out in one orthopaedic case which revealed a rupture of medial meniscus of stifle with thickening of the ligamentous attachments to the pelvic brim.

The second case was euthanased following a guttural pouch mycosis confirmed by ante-mortem endoscopy.

Scotland

No cases were reported this quarter

Northern Ireland

Three post-mortem examinations were examined in this quarter.

Two gastrointestinal cases were reported. A three year old gelding had fibrinous peritonitis secondary to strangulation of the left ventral colon through an omental perforation. *Clostridium sordellii* was also cultured from neck muscle tissue which had appeared bruised at necropsy. The significance of this was unclear but an association with atypical equine myopathy was noted. The second case involved a three-month-old foal which was submitted for necropsy with a history of colic in which a torsion of the small intestine was diagnosed.

One case of parasitism was reported in which a four-week-old foal was submitted with a history of malaise and joint swelling. Parasitism was the most significant finding with a total worm count of 240,000 *Strongyloides westeri* nematodes in the small intestine; and the joint effusions were aseptic.



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

Animal Health Trust
Lanwades Park, Kentford, Newmarket, Suffolk, CB8 7UU
Telephone: 01638 750659 Fax: 01638 555659
E-mail: equinesurveillance@aht.org.uk Website: www.aht.org.uk