DEFRA / AHT / BEVA

EQUINE QUARTERLY DISEASE SURVEILLANCE REPORT

Volume 2, No. 3: July-September 2006

Highlights in this issue:

- **Update on Equine Leptospirosis**
- **Liverpool University Colic Data**
- **Improving the Quality of Veterinary Surveillance**

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 2006 produced by DEFRA, BEVA and the Animal Health Trust. 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.

The third quarter of 2006 saw an escalating situation in terms of equine infectious anaemia (EIA or 'swamp fever') occurring in Europe, which was featured in the last report (Click here). The authorities in Ireland announced on 15th June 2006 that they had found EIA in horses on two stud farms and one affected horse was linked with an outbreak in an equine hospital. Some horses, which may have been exposed to the disease, had been sent to the UK. The State Veterinary Service acted quickly to ensure these horses were isolated and tested for the disease. Further cases of EIA have been confirmed in Ireland and the authorities in Ireland informed DEFRA of further GB tracings which were located and restrictions put in place with sampling being undertaken. A total of 22 horses were placed under restrictions in England, Wales and Scotland. Until 1st September 2006 all testing of any horses resident in the UK had been negative. A single case was confirmed in a foal on premises in Northern Ireland on 1st September 2006. The foal, which was the first case of EIA in the UK for 30 years was humanely put down. DEFRA has maintained liaison with Ireland on their EIA situation, with an extensive surveillance operation continuing there. In late August and early September a further three horses on two premises were found to be positive, but there were no tracings from these premises to the UK. It is not thought that these cases significantly affect the level of risk to the UK based on current epidemiological assessments and all tests have all proved negative and final movement restrictions have been lifted on all the horses on the nine premises in Great Britain. During the same period outbreaks of EIA were also reported in Italy and Germany. Readers are recommended to consult DEFRA's website for the very latest information on the EIA situation in UK, Ireland and elsewhere in Europe (Click here).

Following the emergence of EIA in Ireland, which had been previously free of the disease, on 14th September 2006 DEFRA published online (Click here) a qualitative risk assessment on the risk of introduction of EIA into Great Britain from other EU member states and countries neighbouring the EU. The report concluded that EIA was considered to be present in Russia, the Balkan countries, Romania and Turkey and therefore illegal trade in horses between these countries and neighbouring EU states constituted a risk factor for introduction of the disease into the EU. This emphasised the need for maintaining strict border control measures between the EU and its neighbouring countries.

In this report we welcome for the first time laboratory data contributed from the Royal Veterinary College (RVC), the largest of the now 7 UK veterinary schools. The RVC has an active and wide ranging clinical and research interest in equine surgery and medicine, which is headed by Professor Josh Slater who has a particular interest in infectious diseases of horses and is currently President Elect of BEVA. We appreciate this initial submission from the RVC and look forward to their regular contributions in the future.

We are pleased to include in this report a focus article on Equine Leptospirosis courtesy of Ken Smith and Charlie Dalley. **Ken Smith** is Professor of Companion Animal Pathology at the Royal Veterinary College, specialising in diseases of horses, dogs and cats. Professor Smith previously worked at the Animal Health Trust, where he was Head of Pathology. His interest in leptospiral diseases of horses developed at that time. **Charlie Dalley** is a highly experienced microbiologist working at VLA Weybridge. He is expert in the diagnosis of leptospiral infections in animals, particularly livestock, and has been engaged in pilot research on leptospiral serosurveillance in horses in the United Kingdom.

Following a first syndromic disease report in the corresponding issue last year, an annual summary of colic data from the Leahurst Equine Hospital, University of Liverpool is supplied again by Chris Proudman. **Professor Chris Proudman** is an internationally recognized expert in equine gastroenterology, based at the University of Liverpool. Chris' article introduces data relating to colic referrals made to the equine hospital at Leahurst. This article provides information for the twelve-month period between October 2005 to September 2006.

Included in this report is a focus article on quality assurance in veterinary surveillance, contributed by Dr Kay Williams and Professor Sidney Ricketts, outlining quality control and assurance schemes that are currently in place and potential improvements for the future. **Dr Kay Williams** is Goal Owner for Quality Assurance of the UK Surveillance Strategy and is an active member of BARQA, the Research Quality Association. **Professor Sidney Ricketts** is senior partner at Rossdales equine veterinary practice in Newmarket and head of their Beaufort Cottage Laboratories.

We reiterate that the views expressed in these focus articles 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 Animal Health Trust website at http://www.aht.org.uk/equine_disease.html or via the BEVA and Defra websites:

http://www.beva.org.uk/
http://www.defra.gov.uk/animalh/diseases/vetsurveillance/species/horses/index.htm

We would remind readers and their colleagues that there is available on the AHT website a form for registration to receive free of charge reports regularly via e-mail as they are produced. 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 2006

The results of virological testing for July to September 2006, are summarized in Table 1, and include data relating to equine viral arteritis virus 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. Of the 21 EVA VN positives detected by the VLA, 13 were among export samples, 1 from imports, 3 were samples from overseas and 4 were private requests. The 6 semen samples received for virus isolation were negative for EVA virus isolation after 3 passages in RK13 cell culture, and negative for EVA by the one-tube RT-PCR

Table 1: Diagnostic virology sample throughput and positive results for third quarter 2006

	Number of Samples Tested	Number Positive (%)	Number of Contributing Laboratories
Serological Tests			
EVA VN/ELISA	1394	10#	3
VLA EVA VN	542	21#	1
EHV-1/-4 CF test	590	29*	1
EHV-3 VN test	7	0	1
ERV-1/-2 CF test	372	2*	1
Influenza HI test	293	5*	1
EIA (Coggins)	495	0	1
Virus Detection			
EHV-1/-4 PCR	18	1	1
EHV-2/-5 PCR	5	0	1
Influenza NP ELISA	26	2	1
Influenza VI in eggs	2	2	1
EHV VI	133	2	1
EVA VI/ PCR	1	0	1
VLA EVA VI/ PCR	6	0	1
Rotavirus	23	7	5

VN = virus neutralisation, ELISA = enzyme-linked immunosorbent assay, CF = complement fixation,
HI = haemagglutination inhibition, PCR = polymerase chain reaction, NP ELISA = nasopharyngeal swab
VI = virus isolation, ERV = equine rhinovirus, # = Seropositives include vaccinated stallions
* = Diagnosed positive on basis of seroconversion between paired sera

Virological Diagnoses for the Third Quarter of 2006

EHV-1 Abortion

A single case of EHV-1 abortion was confirmed in September in an unvaccinated Shetland mare that aborted near term. The diagnosis was made on the basis of positive EHV-1 PCR results from fetal tissues. No other animals were affected.

EHV-1 Respiratory Disease

A 22 year-old donkey with respiratory signs was diagnosed with EHV-1 respiratory disease in July on the basis of virus isolation from a heparinised blood sample and a

nasopharyngeal swab. An acute serum sample showed only low CF titres for EHV-1,4 and the donkey was euthanased on welfare grounds so a convalescent sample could not be obtained. This appears to have been an isolated case despite there being a number of in-contact donkeys.

Equine Influenza

In July an unvaccinated sports horse from a yard near Stowmarket in Suffolk tested positive for EIV using nucleoprotein ELISA applied to a nasopharyngeal swab sample. The horse travelled from Ireland two days prior to developing clinical signs of pyrexia and lethargy. Five in-contact animals were shown to be uninfected. Virus was isolated and further characterisation is continuing.

In August 2006 a positive EIV sample was received from an outbreak in Lanark, Scotland. The affected horse showed signs of lethargy with swollen submandibular lymph nodes. The affected horse of unknown vaccination history was imported from Poland three days before showing signs. Characterisation of the viral isolate is ongoing.

Case study on neurological disease in a donkey (kindly contributed by Sophie Catling, Donkey Sanctuary, Sidmouth, Devon)

A 26 year-old donkey gelding presented with in-coordination and hind limb paresis. Five days earlier he had been noted to be slightly ataxic and after initial improvement remained weak on the hind limbs. On the day of examination he was recumbent with the fore limbs stretched straight out and was unable to rise unassisted. A hypotonic tail and reduced perineal reflex were noted, but the donkey was bright and eating. When on his feet he showed hind limb ataxia and lack of proprioception. Temperature, pulse and respiration were normal as were his membranes and capillary refill time. Auscultation of the chest showed no abnormalities and no evidence of external trauma was found. Neurologic herpes was suspected and a blood sample was taken for EHV-1 serology.

Intravenous dexamethasone and intramuscular ceftiofur were administered. The animal was examined the next day when was found to be unable to pass urine properly and also had a very full rectum but showed no signs of voiding. A decision was made to euthanase the animal due to this continued deterioration.

Samples were taken to test for EHV-1 and all were found to be negative. Section of the spinal column revealed an old collapsed intravertabral disc at C7-T1 and more recent fracture of the articular processes of C6-C7 with excessive callus formation impinging into the spinal canal on both sides. These protrusions extended some 5 to 8mm causing compression of the spinal cord in this region however no associated sub-dural haemorrhages were found.

The lesions were considered to be several days to over a week old and in retrospect one of the grooms recollected an incident a week previously when this donkey slipped in a doorway, fell awkwardly and appeared to knock his head.

Bacteriology Disease Report for the third quarter 2006

A summary of the diagnostic bacteriology testing undertaken by different contributing laboratories is presented in Table 2. For contagious equine metritis (CEM) 12 of 28 HBLB approved laboratories contributed data.

VLA CEMO Data for the period July, August, September 2006.
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.

Submissions for International Trade pre-export tests continue the upward trend with swab numbers up 9.9% when compared with the same quarter in 2005.

Table 2: Diagnostic bacteriology sample throughput and positive results for third quarter 2006

	Number of Samples Tested	Number Positive	Number of Contributing Laboratories
CEMO (HBLB)	758	0	11
CEMO (VLA)	1739	0	1
Strangles*	2187	134	10
Salmonellosis	278	6	8
MRSA	53	2	5
Clostridium perfringens	13	3	1
Clostridium difficile (toxin by ELISA)	21	0	3
Cryptosporidium	2	0	1
Borrelia spp.	4	2	1

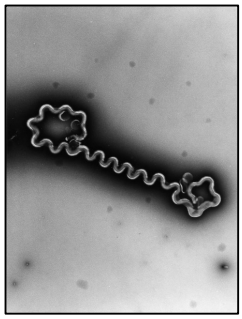
CEMO = contagious equine metritis organism (*Taylorella equigenitalis*); HBLB = HBLB accredited laboratories; VLA = VLA reference laboratory**;** *Streptococcus equi; MRSA = methicillin resistant *Staphylococcus aureus.*

Of the 278 samples tested for Salmonella spp., 170 were sent directly to the VLA for testing and of these 3 (1.8%) were found to be positive. The other 3 positive samples were among 108 samples tested by other laboratories subsequently confirmed and typed at the VLA. Of the 6 typed strains there were 2 each of *S. montevideo, S. typhimurium 104* and *S. typhimurium 41*.

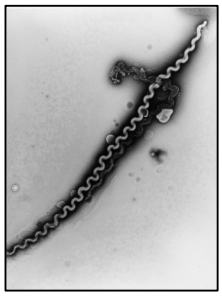
FOCUS ARTICLE: HOW COMMON IS *LEPTOSPIRAL* INFECTION IN UK HORSES - PRELIMINARY SEROLOGICAL OBSERVATIONS.

Ken Smith, Royal Veterinary College and Charlie Dalley, VLA Weybridge

Serological surveys in many laboratories around the world have indicated that leptospiral infections occur frequently in horses and can be caused by a wide variety of leptospiral serotypes (serovars) within the pathogenic genospecies *Leptospira interrogans*. The infections are usually sub-clinical, though infection may be associated with recurrent uveitis, abortion and liver disease, especially in neonates. In Eastern Europe, Pomona and Grippotyphosa have been identified as the most regularly occurring serovars of the horse. Infection by serovar Pomona is also widespread in the USA and in South America, whereas serovar Bratislava is the predominant equine leptospire in Northern Ireland. There is rising international concern about the role that serovar Bratislava plays in animal disease and its rise in prevalence over the last 20 years. This serovar is the most prevalent found by the Veterinary Laboratories Agency (VLA) in porcine and canine submissions.



Sera submitted to the AHT for laboratory testing from 873 horses were randomly selected and anonymised and tested by the microscopic agglutination test, using a modified microtitre method. Initially all sera were tested by a screening method at a serum dilution of 1/100 against six pools of 20 live leptospiral antigens: serovars Canicola, Icterohaemorrhagiae, Ballum, Copenhageni, Pomona, Grippotyphosa, Tarassovi, Mozdok, Australis, Bratislava, Autumnalis, Muenchen, Sejroe, Hebdomadis, Mini, Bataviae, Zanoni, Javanica, Hardjo prajitno and Hardjo bovis. Sera that were positive to the individual pools were then tested further, by double dilution starting at a titre of 1:100 against the individual serovars of the positively reacting pool. When titres to more than one leptospiral antigen occurred in a serum sample the highest titre was recorded (where two antigens gave equally high titres then both were recorded). All procedures were performed under the UKAS quality scheme ISO17025.



Of the 873 horse sera tested, 220 (25.2%) were recorded as positive to one or more serovars. 165 were positive to a single serovar, 46 to two leptospiral serovars and 9 to three or more leptospiral serovars. Twenty five percent of all sera with significant antibody titres were recorded as positive to more than one leptospiral serovar. Dropping the criteria of the highest titre being recorded as the significant serovar, 112 were positive at >1/100 to 2 or more leptospiral serovars (that is, 50.9% of all positive sera were positive to 2 or more leptospiral serovars).

This serological survey indicates that leptospiral infection is common in British horses. Horses from other countries may be infected with a variety of different leptospires, and no single serovar is associated with the horse as a maintenance host. Bratislava was found to be the predominant serovar in this survey. Strains of this serogroup have been isolated from wildlife, including hedgehogs, rats, wood mice, short and long-tailed voles and badgers, and from porcine and canine sources. Any of these wild or domesticated species could be a source of Bratislava serovar infection in horses.

Our data indicate that leptospiral antibodies indicative of prior exposure to infection are common in horses in the United Kingdom. Further work is needed to establish whether these infections are associated with clinical disease.

Toxic and Parasitic Disease Report for the Third Quarter of 2006

A summary of diagnostic toxicosis and parasitology testing undertaken by contributing laboratories is presented in Tables 3 and 4 respectively.

Table 3: Diagnostic toxicosis sample throughput and positive results for third quarter 2006

	Number of Samples Tested	Number Positive	Number of Contributing Laboratories
Grass Sickness	5	1	1
Hepatic toxicoses	101	21	3

Table 4: Diagnostic parasitology sample throughput and positive results for third quarter 2006

	Number of Samples Tested	Number Positive	Number of Contributing Laboratories
Endoparasites			
Ascarids	721	18	3
Coccidiosis	21	1	1
Cyathostomes	255	75	3
Dictyocaulus	221	3	3
Strongyles	449	72	5
Strongyloides	21	1	1
Tapeworms	676	43	4
Trichostrongylus	21	2	1
Ectoparasites			
Lice	188	1	5
Chorioptes	196	3	7
Ringworm	84	15	4
Demodex	154	1	3
Trombicula	154	2	3

Syndromic disease report: Liverpool University Large Animal Hospital Colic Data - October 2005 to September 2006

Courtesy of Prof. Chris Proudman, Faculty of Veterinary Science, University of Liverpool

SUMMARY OF OUTCOMES OF COLIC CASES ADMITTED TO LIVERPOOL UNIVERSITY EQUINE HOSPITAL, LEAHURST BETWEEN 0CT'05-SEPT'06 (TOTALS CORRESPOND TO EACH QUARTER)

KEY

Medical
Surgical

4th Quarter 2005
1st Quarter 2006
2nd Quarter 2006
3rd Quarter 2006

Total number of cases admitted to hospital

This figure represents cases managed surgically and medically and reflects the broad seasonal variations in admission rates. The number of admissions in the second quarter of 2006 is influenced by the seasonal pattern of grass sickness admissions. At Liverpool most of these cases are classified as 'surgical' as they undergo exploratory laparotomy and ileal biopsy.

Post-operative survival

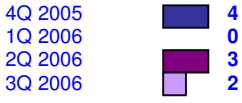
This figure represents the percentage of horses undergoing colic surgery that walk out of the anaesthesia recovery box.

Short-term survival of surgical cases (discharged from hospital)

This figure describes the percentage of surgical colic cases that survive to discharge from the hospital. Losses prior to this stage include intra-operative death or euthanasia and post-operative death/euthanasia due to complications (e.g. ileus, endotoxaemia, peritonitis).

Dead on arrival

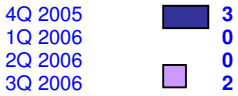
Died or euthanased prior to surgery



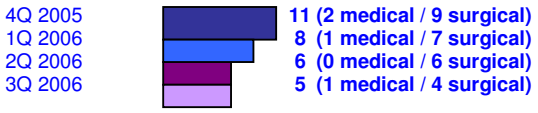
Died or euthanased on the operating table

Horses in this category are euthanased for a number of different reasons, e.g. untreatable primary lesion, ruptured viscus, overwhelming evidence of equine grass sickness.

Died or euthanased in recovery

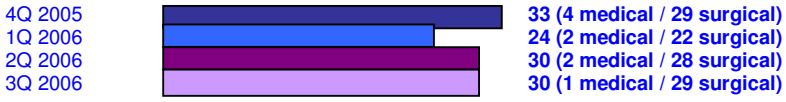


Died or euthanased post-operatively or at re-laparotomy or post-treatment



Discharged in <7 days

Discharged in >7 days



Report on *Post Mortem* Examinations for Third Quarter 2006

East Anglia

Twenty-three cases were examined this quarter.

A total of twelve cases of abortion were submitted for PME this quarter. All occurred in Thoroughbreds and of the twelve; four had evidence of poor placental perfusion, one was due to focal constriction of the umbilical cord leading to fetal and placental compromise, three were due to umbilical cord torsion, two cases showed bacterial placentitis and fetal septicaemia, one had a developmental abnormality and one case was undiagnosed. In six cases placental and fetal tissues were examined for EHV-1,4 by PCR and all results were negative. In one case the placenta was not submitted and fetal tissues only were examined for EHV.

A four-month old Thoroughbred foal was examined at PME having been euthanased several weeks after being diagnosed with *Rhodococcus equi* infection of its right stifle joint. Findings at PME included muscle wastage of right gluteals, extensive *R.equi*

abscessation of the right stifle joint and distal femur resulting in osteomyelitis and bone sequestration and abscesses in the mesentery and right inguinal region.

An adult pony euthanased as a result of sudden onset neurological signs was examined. Findings included; epicardial roughening, oedema and fibrinous exudation, severe ventral, sternal and prepucial oedema and peritoneal, pleural and pericardial effusions. An underlying cause for these findings was not determined.

An aged pony gelding euthanased for emaciation, extreme weakness and recumbency was examined as an investigation of possible neglect. Findings included: generalised muscle wasting and marked loss of fat reserves, severe changes in the lungs, atlanto-occipital joint and trachea and severe dental abnormalities. The most significant finding was a pathological condition affecting the lungs had greatly reduced volume due to chronic generalised pulmonary fibrosis the end-stage effects of which are likely to have caused severe compromise to pulmonary function. Tracheal lesions reduced the lumen size at several sites. Whether there was any association between the tracheal changes and the development of marked pulmonary fibrosis could not be determined. Emaciation was thought to be a result of the abnormalities of the teeth and pain associated with atlanto-occipital joint changes preventing lowering of the head to graze.

Two cases of renal carcinoma, three cases of cardiovascular disease and single cases of ruptured oesophagus and osteosarcoma were also diagnosed.

Home Counties

Nineteen cases were examined this quarter.

A single neonatal Thoroughbred-cross foal was examined and found to have suffered a perforated gastric ulcer.

A single sudden death case was found to have suffered a ruptured diaphragm. Two racehorses were examined as casualties; one was found to have tearing of the serratus ventralis and associated haematoma and the other had a fractured ileal shaft. A colic case that was euthanased was found to have an enlarged spleen with fibromuscular thickening of the splenic capsule and trabeculae suggesting a chronic splenic condition.

Other diagnoses made in adult animals included single cases of grass sickness, gastric rupture, ruptured left ventral colon, ruptured caecum, ruptured transverse colon, bile duct carcinoma, ulcerative colitis and fungal pneumonia (presumed aspergillosis), mesenteric abscess (*S.zooepidemicus*), cervical vertebral stenotic myelopathy associated with vertebral malformation C6-7.

In aged animals findings included aortic aneurysm (presumed post-parasitic) and chronic pleural and interstitial pulmonary fibrosis (presumed post-allergic), bilateral phaeochromocytomas affecting adrenal glands, strangulation of distal small intestine by pedunculated lipoma.

In two cases no diagnosis was reached.

South West

Nine cases were examined this quarter.

Two cases of neoplasia were diagnosed: one sub-epiglottic squamous cell carcinoma within the larynx and one spindle cell tumour (possibly a leiomyosarcoma) of the spleen.

Diagnoses of alimentary disease included: left colon and caecum displacement, a case of ruptured left colon thought to be due to focal abscessation and a case of small intestinal muscular hypertrophy with diverticulosis of the jejunum and rupture.

Single cases of; diffuse pneumonia (interstitial and alveolar) of unknown cause, navicular bone disease, mesenteric arterial thrombosis and inflammation thought to be post-parasitic, peritionitis of unknown cause.

Scotland

A single case was examined this quarter.

The case involved a fourteen year-old Connemara mare that had been suffering from anorexia, dullness and diarrhoea and an infestation of ticks. A worm egg count, carried out when the horse was first seen to be ill, detected 2800 trichostrongyle eggs per gram. A regenerative anaemia was detected with a PCV of 0.27l/l (reference range 0.35-0.50l/l). There was also a hyperglobulinaemia with a globulin level of 51g/l (reference range 19-37g/l). Despite worming and treatment with antibiotics the mare continued to deteriorate and was euthanased. At post-mortem examination there was evidence of diffuse perionitis and a localised, fibrinous, adhesive peritonitis between three adjacent loops of small intestine. In the affected area a 3mm full-thickness perforating ulcer was detected. A few 1mm erosions were detected in the adjacent mucosa. On histopathology there was a florid, mixed inflammatory cell infiltrate, which was dominated by neutrophils on the serosal surface and there was a thick layer of granulation tissue. There was no evidence of eosinophils and the cause of the ulceration was not determined.

Northern Ireland (AFBINI)

Eight cases were examined this quarter.

Cases included one aborted foetus and six sudden deaths. No specific diagnosis was reached in the case of abortion however a mixed growth of *Streptococcus zooepidemicus* and *Escherichia coli* was cultured from fetal stomach contents and mixed fetal tissues. A post-mortem examination was carried out in August on a three-month-old foal, which had a history of contact with a confirmed equine infectious anaemia (EIA) case. Post-mortem findings were consistent with EIA infection and EIA was confirmed using the Coggins test.

FOCUS ARTICLE: IMPROVING THE QUALITY OF VETERINARY SURVEILLANCE

Kay Williams, Defra and Sidney Ricketts, Rossdale & Partners, Newmarket.

Veterinary surveillance is the process involved in collecting and analysing information about animal-related health and welfare threats, including equine diseases. It is also about making sure that this information reaches those who need it so that timely and appropriate action may be taken and advice given.

Working in partnership

As part of a 10-year UK Veterinary Surveillance Strategy (VSS), the private sector and interested parties have been working with Defra to improve and assure the quality of data used in surveillance activities. This is in support of gathering and making best use of data from a wide range of sources. Effective policy relies on good evidence and decision makers depend on reliable surveillance data on which to base important strategic decisions. This does not mean that Defra necessarily doubts the reliability of information given in good faith but it does believe that there needs to be a greater understanding of the credibility of the data and its limitations for particular purposes. Veterinary surgeons also need to have confidence in data in order to formulate appropriate information and advice for themselves and for their clients.

Using existing Quality Assurance/Quality Control standards

For data arising from activities that are directly funded by organisations such as Defra, there is justification in insisting that the appointed data providers have quality assurance (QA) systems in place. Similarly small businesses need adequate quality control and quality assurance policies and programmes that are fit for their own purposes, which vary enormously within the veterinary sphere. Sometimes, such as is the case for zoonoses testing, there is a legal requirement for laboratories to be externally accredited to international or European standards.

There are various well-established schemes and standards that exist, such as Good Laboratory Practice (GLP) and those overseen by the International Standards Organisation (ISO). However, these schemes are often costly to implement and maintain despite their acknowledged benefits. They are also not cost-effective for many private veterinary laboratories. This is particularly the case when some of these schemes assure only the managerial and administrative aspects of laboratory work and give less assurance that the laboratory's analyses are either performed accurately or the results interpreted correctly. Therefore, these schemes do not always satisfy the needs of private veterinary laboratories.

Repeated attempts have been made over many years to devise a universally applicable UK veterinary laboratory QA scheme without success most importantly because, unlike their medical counterparts, veterinary laboratories vary so much in their size, work done, needs and aspirations. Therefore, many veterinary practice and commercial laboratories have quite properly and adequately devised their own in-house quality control (QC) programmes (day-to-day repeat analyses monitoring continuity and repeatability of

analyses and test results) and their own external QA programmes (regular periodic laboratory testing of externally-provided samples, with external comparison and assessment of results by the providing organisation).

There are both commercial and publicly-funded laboratories that provide haematological and biochemical reference control material which may be run daily for internal QC, in addition to the repeated day-to-day testing of clinical samples. For example, Streck Laboratories' provide haematological reference control material and both Randox and Instrumentation Laboratories provide serum biochemical reference control material. The UK National External Quality Assessment Scheme (NEQAS), the Welsh External Quality Assessment Scheme (WEQAS) and Randox Laboratories provide and assess monthly QA testing for haematological examinations and every two weeks for biochemical examinations. The Veterinary Laboratory Agency (VLA) provides a range of materials for biochemical examinations. A specific bi-annual QA scheme for equine reproductive bacteriological testing is run as part of the Horserace Betting Levy Board's designation of laboratories programme. It is probable that more specific veterinary QC and QA schemes will become available in the future.

Extending the range of data providers and making use of as many data sources as possible is an important component of the VSS. Defra is concerned about imposing stringent quality requirements, which may discourage specialist, smaller and practice laboratories or other providers of potentially useful data. By recognising properly implemented and documented QC and QA programmes and by working with existing quality schemes such as the Royal College of Veterinary Surgeons (RCVS) Practice Standards scheme, the RCVS Veterinary Hospital scheme and Defra's Joint Code of Practice for Research, Defra seeks to avoid duplication and build on existing systems to develop a harmonised approach.

The challenge now is to ensure that all parties gain by adopting approaches that yield maximum benefit in an affordable way. Quality assurance for any data provider is crucial and a key component for businesses as well as for enhanced veterinary surveillance across the UK.

Note: the QC and QA programmes and schemes referred to in this article are for illustrative purposes only. The authors do not endorse any one of these in particular.

ACKNOWLEDGEMENTS

This report was compiled by the Animal Health Trust.
We are extremely grateful to the following laboratories for contributing data for this report.

Avonvale Veterinary Practice
Agri-Food and Biosciences Institute of Northern Ireland
Beaufort Cottage Laboratories
BioBest Laboratories Ltd
Donkey Sanctuary
Equine Veterinary Hospital, Arundel
Greenwood, Ellis and Partners
JSC Equine Laboratory
Liphook Equine Hospital
NationWide Laboratories
Royal Veterinary College, London
SAC Veterinary Services
Three Counties Equine Hospital, Kearns and Rea
University of Bristol, Department of Pathology
University of Liverpool, Equine Hospital, Leahurst
Veterinary Laboratories Agency

All laboratories contributing to this report operate Quality Assurance schemes. These schemes differ between laboratories, however, all the contagious equine metritis testing reported was accredited by the Horserace Betting Levy Board with the exception of the VLA, which acts as the reference laboratory.

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

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