

The future of surveillance for animal diseases in England and Wales - does it matter and can the country afford it?

BACKGROUND

The significance of animal disease

Animal disease can cause serious social, economic and environmental damage, compromise animal welfare and threaten human health (DEFRA 2013). Despite remarkable advances in research on diagnostics and medical therapies, infectious diseases remain one of the leading causes of death in man (Petersen et al 2013). The Joint Conference on Emerging and Re-emerging Epidemics affecting Global Health (2012) considered that 'Globalization, leading to increased cross-border and cross-continental movement of people, livestock, food and vectors, together with the trend of global warming leads to an enhanced spread of pathogens into areas where specific agents were not formerly known to occur. This has important implications for the prevention and the control of emerging and re-emerging infectious diseases both on the national and global level' (Petersen et al 2013). A literature survey in 2005 identified 1,407 recognised species of human pathogen, 58% of which are zoonotic. Of the total, 177 were regarded as emerging or re-emerging and zoonotic pathogens were twice as likely to be in this category compared with non-zoonotic pathogens (Woolhouse et al 2005). There are also many examples of animal-related threats to the human food chain, for example bovine spongiform encephalopathy (BSE), and those currently of concern include hepatitis E virus (Berto et al 2012) and *Mycobacterium bovis*, which can infect a wide range of species including humans. Detection of toxic exposure in animals can also act as an indicator or sentinel for human exposure and disease, for example heavy metals (lead, cadmium, mercury) and organic compounds such as organochlorines and acrylamide (O'Brien et al 1993; van der Schalie et al 1999).

The role of pathology in animal disease surveillance

Effective animal disease surveillance is essential to protect human health and the food chain as well as underpinning UK food security, international trade and animal welfare, and veterinary pathologists play a pivotal role. Within surveillance, pathology is a crucial component of investigating new and emerging threats including identification of novel disease presentations, establishing the case definition for further epidemiological studies and direction of investigation of potential causes. For example, veterinary pathologists were instrumental in recognition and characterisation of diseases of serious zoonotic concern including BSE in the UK, and West Nile Fever in New York in 1999 which was initially assumed to be St Louis encephalitis by medical colleagues (MacLehose et al 2002; ProMED 1999b, 1999c). In contrast, human and porcine illness associated with Nipah virus infection was considered to be due to Japanese encephalitis virus for more than 12 months: histopathological analyses of the concurrently affected pigs would have quickly and clearly indicated that this was not the case (ProMED 1998, 1999a).

The many recent examples investigated by AHLVA and SAC C VS include bovine neonatal pancytopenia (detection and elucidation of a novel pathogenesis of fatal disease in young calves associated with maternal vaccination), salinomycin toxicity (a potential food safety incident) and respiratory cryptosporidiosis in red grouse (so called bulgy eye - a newly recognised disease of red grouse and the first novel disease condition in these birds in decades, and encephalitis associated



with a neurotropic sapelovirus in pigs (Laming et al 2012; Holliman et al 2011; Coldwell et al 2012; Schock et al 2014).

Ongoing examples include the crucial role of pathologists in the rapid identification of the devastating outbreak of porcine epidemic diarrhoea virus (Stevenson et al 2013) that is estimated to have killed more than 10% of the US pig herd (8 million pigs) since the outbreak began in 2013 (Reuters 2014). Bouzalas and colleagues (2014), in their paper on newly recognised bovine Astrovirus encephalitis, emphasise the crucial role of histopathology in detection of new and emerging neurological conditions: *“Often the first step toward an etiological diagnosis is post-mortem histopathological examination of the brain, followed by procedures to identify the specific pathogen”*. Pathology also has an important role in endemic disease diagnosis, both for primary diagnosis of disease and for assessment of significance of pathogen detection, particularly in relation to changes in virulence and disease presentation.

This vital role of veterinary pathology in new and re-emerging threat detection and characterisation has been acknowledged widely: current DEFRA officials have stated: *“The ‘unknown unknowns’ out there, such as the recently identified Schmallenberg virus (SBV), perhaps present the greatest challenge, requiring a system that can identify truly unusual events and then respond with appropriate investigation and action..... The key to effective surveillance is the application of high quality pathological and epidemiological investigative systems, allied with cutting-edge immunological and pathogen-detection techniques”* (Roberts et al 2012).

The VLA’s ‘It’s a partnership’ survey of practising veterinary surgeons (PVS) (VLA, 2011) documents the high regard of PVS for VLA’s role in surveillance and the quality of its work prior to the re-structuring: *“The surveillance carried out by VLA, and the outputs produced, were considered to be of high quality, trustworthy, and the most robust available. The opinions and the expertise of many VLA vets were valued highly.”*

CUTTING THE COST OF SURVEILLANCE: THE POLITICAL PROCESS AND RCPATH INVOLVEMENT

The Surveillance Advisory Group

Despite DEFRA’s explicit statements on the importance of surveillance, and the crucial role of high quality laboratory backup, following the 2010 comprehensive spending review, a 30% reduction (with the prospect of further cuts) in government spend on laboratory-based detection of animal related threats was announced. In England and Wales Animal disease surveillance is currently primarily carried out by the Animal Health Veterinary Laboratories Agency (AHVLA); see Box (1) for a brief history of surveillance for animal disease in England and Wales.

A Surveillance Advisory Group (SAG) chaired by Professor Dirk Pfeiffer, an epidemiologist with a substantial publication list but no experience of scanning surveillance, was set up by DEFRA to *“advise on ways to deliver cuts to AHVLA without jeopardising disease monitoring capabilities in England and Wales”*. The so-named independent SAG included four government officials and one representative from a commercial laboratory, together with individuals representing the pig, sheep and poultry veterinary sectors, but no pathologist and no representative of cattle veterinary practice. The SAG was clear that *“the purpose of surveillance is to provide high quality evidence on animal health and welfare to enable producers, the veterinary profession and Government to take good decisions leading to improved health and welfare and productivity, and reducing the risk of threats to public health, trade, welfare and wider society from animal diseases”* (Surveillance Advisory Group Report, 2012).

However, perhaps in part because of the time constraints acknowledged by the SAG, the group’s discussions and report appear to have been based almost exclusively on several AHVLA and DEFRA internal documents, brief informal communications from other countries, and a short consultation of stakeholders. Interestingly, the Model Review Paper (SAG report, Appendix 3), contains the statement *“It has been challenging to quantify the efficacy of the models in different countries, so in some areas the evidence in this paper is limited to description, however the*

persistence of these approaches suggests they are considered to provide a useful outcome”.

Strangely, the authors seemed unaware that exactly the same conclusion was applicable to the network of regional Laboratories in England and Wales in existence at that time. There was no mention of a systematic comparison of the structure (for example in relation to number of providers of post-mortem data, source of national expertise) or efficacy of surveillance systems in other EU countries (for example the methodology employed in the identification of new and emerging diseases such as Schmallenberg virus). Even more surprisingly there appears to have been no consideration of the substantial number of peer-reviewed publications on this subject of effective scanning surveillance for detection of animal disease.

The SAG report (published April 2012) included core recommendations to increase the number of holdings and animals having access to a post-mortem facility or collection point to 95% for effective surveillance and to ensure a sufficient case load to allow development and maintenance of required levels of expertise in species specific pathology (Box 2). The recommendations also suggested a tiered approach to pathology, including support for private veterinary surgeons (PVS) to perform necropsies, pathologists trained in gross pathology and subject-specific experts (Box 2).

AHVLA's public consultation on the S2014 restructuring proposals

In May 2012, AHVLA announced it was beginning to implement recommendations made earlier that year by the SAG, in a process referred to as Surveillance 2014 (S2014). Dr Andrew Soldan, formerly head of the agency's commercial division, AHVLA Scientific, was appointed Business Lead for the S2014 project tasked with modelling and implementing changes to surveillance based on the SAG's recommendations. Dr Soldan said he would *“attempt to improve the geographical coverage and response time for testing, work to develop more specialist skills in the sector and continue consulting with businesses and academic institutions. Whilst there are challenges in implementing the SAG's recommendations, the aim is to enhance the surveillance undertaken. Key in taking forward this work will be to continue with the approach taken during the initial phase of the project of consulting widely in developing and testing options before implementation, and I intend to fully engage with the veterinary profession and to consult other stakeholders in taking this project forward.”*

Shortly after this announcement, the President and representatives of the Veterinary Pathology SAC from this College sought engagement with the AHVLA CEO in future decision-making processes, with the result that a brief meeting was held between representatives of AHVLA and the College in September 2012. At this meeting, the possible role of the College in monitoring standards of non-governmental necropsies of farmed animals, in particular those undertaken by clinicians, was raised. In order that the College could begin discussion and consultation on the possibility of independent assessment of necropsy standards, data was requested from AHVLA concerning the numbers of AHVLA veterinarians who may be eligible for this form of assessment, the number of practising veterinary surgeons undertaking farm animal necropsies in the field, the number (mean and range) of necropsies per practitioner per month, the range of species for which each individual practitioner is likely to require assessment. The College also requested clarification of what data are required from practitioner necropsy examinations as this will inevitably influence the standard required. No response was received. Despite the College's positive stance, and request for involvement, it was not invited to participate in the internal discussions that led to the proposals contained in the Surveillance 2014 consultation document.

The proposed changes to animal disease surveillance in England and Wales were released for public consultation in November 2012, with the statement that *“There are some parts of the system which cannot change: the system must remain in partnership with private veterinary surgeons and their clients, who are the first line of veterinary surveillance on farms. The ability to fully investigate incidents and the threats they pose also has to remain a vital part of the system.”*

The proposals contained three main 'scenarios' (Box 3) of similar approach, involving reductions of AHVLA post-mortem examination (PME) sites in England and Wales from 13 to four, five or six, supplemented by satellite surveillance centres and collection points. This reduction in the number

of AHVLA 'PME sites' would be accompanied by a commensurate reduction in the number of subsidised necropsy examinations undertaken at these sites, by a process of triage. It was suggested that the four Surveillance Centres would include the two existing University-run Surveillance centres at London and Liverpool, and it was proposed that Nottingham and Bristol Universities would run the diagnostic services currently provided by AHVLA on those campuses. Access to the reduced number of AHVLA 'PME sites' would be maintained by a carcase collection service, and clinicians (private veterinary surgeons, PVS) would undertake those necropsy examinations that were rejected for subsidised PM under a proposed triage system. Thus there would be a need for provision of training of PVS in necropsy techniques and related topics including health and safety, provision of suitable PME facilities and appropriate data collection system, and a quality assurance process.

Responses to the S2014 consultation

A working group of the SAC on Veterinary Pathology, chaired by Professor DF Kelly and composed of members with surveillance sector and academic experience, drafted a response outlining the College's four main areas of concern:

- Developing and sustaining pathology expertise
- Quality assurance
- Systematic pathology data capture and analysis
- Biosecurity, health and safety

The College's response provided compelling evidence that the proposed laboratory system will not sustain expertise and institutional memory in pathology of farmed species that is essential for investigation of potential new and re-emerging animal-related threats, and is likely to damage it.

The AHVLA summary of responses to the S2014 consultation, published in May (2013a), specifically acknowledged all of the College's concerns (Box 3). Moreover, the AHVLA's overall summary of responses recorded that the majority of respondents reported concern that the proposals would not meet the objectives and also most respondents disagreed that any of these options, even with a carcase collection service, would provide an adequate service (Box 3). However, the Animal Health and Welfare Board for England (AHWBE), the body "responsible for strategic animal health and welfare policy, and oversight of implementation in relation to England, taking account of public health considerations" glossed over these concerns and did not mention any of these criticisms in their 2013 Annual Report (Box 4).

Further information gathering

The College continued to gather evidence regarding effectiveness of surveillance in England and Wales and to this end submitted several Freedom of information requests to AHVLA for reports referred to in the SAG report and for AHVLA surveillance data to assess effectiveness of surveillance methods. These data and information (see Box 5) served to underline the concerns raised in the College's response to S2014, particularly in relation to low diagnostic rates for PMEs carried out by veterinary practitioners and the lack of efficacy of data analysis systems as a means of detecting new and emerging disease. These data and the College's concerns were communicated to the Defra Secretary of State and copied to other parties including the Animal Health and Welfare Board for England (AHWBE), Chief Veterinary Officer (CVO) England, Deputy Chief Veterinary Officer (DCVO) England – Senior Responsible Officer for surveillance, AHVLA CEO, CSA, Chair EFRAcom, RCVS President and the Minister for State for Agriculture and Food.

RESTRUCTURING OF ANIMAL DISEASE SURVEILLANCE IN ENGLAND AND WALES

Failure to meet the recommendations of the Surveillance Advisory Group

Despite the widespread reservations consistently voiced by PVS, farmers and pathologists, acknowledged by the AHVLA in its summary of responses to the consultation document (Box 3) and the stated aspiration of AHVLA that the new system must remain in partnership with the PVS and their clients, it was announced by AHVLA that one of the 'scenarios' (slightly modified) that was outlined in the consultation document would be implemented (AHVLA, 2013b). Astonishingly presented as "*an improved approach to scanning surveillance to better detect new and re-*

emerging animal diseases and threats in England and Wales", the AHVLA stated that the number of AHVLA diagnostic centres undertaking post-mortem examinations in England and Wales would be more than halved from 13 to 6 in 2014, with a further loss of one centre in 2015.

The S2014 restructuring fails to implement many of the main recommendations of the SAG report. One of the core recommendations was to increase the 2012 level of approximately 50% of holdings and animals having access to a post-mortem facility or collection point within one hour's travel time, with the aim of achieving 95% with such access. However, the restructuring, even if all the four proposed Surveillance centres continue or are established at veterinary schools, will result in only 36% of holdings being within one hour travel time of an AHVLA PM site or a Surveillance centre (data supplied by AHVLA, RCPATH S2014 Consultation response (2013)). AHVLA stated that the AHVLA collection service would be discontinued in 2017. No data capture from PVS PMEs is planned despite the SAG (2012) considering it *"essential that any diagnostic and surveillance information from these satellite sites can be fed into the surveillance system."* Further, there is no mention of quality assurance or quality assured protocols in the AHVLA restructuring announcements, despite the SAG stating that the PMs at satellite sites will need to follow quality assured protocols. The restructuring will reduce the AHVLA's caseload and data gathering through a combination of reduced numbers of PME sites, triage of cases and failure to collect information from PVS PMEs, despite the SAG statement that *"In order for a model to be successful, case load and data gathering has to be sufficient to identify unusual cases (as indicators of potential new diseases), and develop and maintain expertise"*.

Despite the repeated assurances by AHVLA and DEFRA that the changes were to improve and enhance surveillance and provide greater access to diagnostic facilities, the British Veterinary Association (BVA) raised concerns that the process was simply a cost-cutting exercise in several insightful editorials in its weekly scientific journal *The Veterinary Record* (Veterinary Record Comments 2014a, b, c).

The College's press release (Royal College of Pathologists, 2013) again raised concerns "...these changes should have been piloted before roll-out. We are not opposed to change but it is vital that expertise in veterinary pathology is sustained and improved so that surveillance is more effective, not less. There has been no explanation of how outsourcing tests to services outside DEFRA control will provide high-quality, effective testing." The College also raised concerns about whether there will be sufficient numbers of veterinary pathologists working with livestock, and how the intelligence gathered will be properly collated and assessed.

The current status of AHVLA animal disease surveillance: update January 2015

Seven AHVLA PME sites have been closed. The AHVLA laboratory at Winchester was closed in June 2014 ahead of the scheduled closure date of April 2015. The decision to close the Winchester laboratory early was apparently 'a result of recent staffing changes locally' (Veterinary Record Editorial 2014c). A carcass collection system was put in place for the previous catchment area of the Winchester site to deliver carcasses to Bury St Edmunds. However at the time of writing, it is highly unlikely that this is providing adequate support to farmers and their vets. As previously commented in the *Veterinary Record*, Bury St Edmunds is about 145 miles from Winchester by road which is likely to make timely collection and examination of carcasses difficult, and the sudden change of plan means that for at least several months, a large chunk of southern England will be left without a local centre (Veterinary Record Editorial 2014c).

The Universities of Liverpool and Nottingham did not tender for provision of post-mortem services. The following 'new post-mortem examination providers' were announced by AHVLA in September 2014 (AHVLA, 2014):

- The Royal Veterinary College – serving areas of East England
- SAC Consulting Veterinary Services – serving areas in North East England
- The University of Bristol – serving areas of South West England
- The University of Surrey – serving the East Midlands and South East and parts of the East, South West and North West England (from autumn – winter 2014/15).

The AHVLA also stated *“By adding additional post-mortem examination (PME) providers to AHVLA’s network of post-mortem centres, and through the introduction of a funded carcase collection and transport service to serve areas more than one hour from a PME centre, AHVLA is increasing the proportion of livestock holdings with good access to diagnostic and surveillance sites.”* It is not clear what is meant by ‘good access’ and the % of livestock holdings within a one hour drive is not stated. However, the map of coverage published by AHVLA in October 2014 (Figure 1) illustrates large areas of England and Wales that do not have access to a diagnostic facility within 1 hour’s travel time, falling well short of the SAG’s recommendation that 95% of holdings should be within a 1 hour travelling time of a PM centre or collection point.

The University of Surrey and Westpoint Veterinary Group announced in November 2014 that their provision of post-mortem examinations of farmed livestock will begin at the end of January 2015 and that it is anticipated that the service will be fully operational by April 2015 across all areas covered (Cook and others 2014). *Post-mortem examinations will be conducted either at the university’s pathology facilities or at suitable local fallen stock sites by private veterinary surgeons trained and overseen by expert veterinary pathologists from the university’s School of Veterinary Medicine* (Cook and others 2014).

However, at the time of writing in January 2015, with the exception of SAC Consulting Veterinary Services, none of the new expert providers, including the University of Surrey, employs a veterinary pathologist with specific expertise in surveillance pathology of farmed animals, as demonstrated by FRCPath by examination in ruminant and pig species. It is therefore of particular concern that there is no mention of Quality Assurance Assessment for the provision of post mortem services.

A second tendering process was required to confirm providers of post-mortem examinations for the areas of Wales not covered by APHA VIC Carmarthen and for the West Midlands region. APHA announced on 19th December 2014 that the contract for the provision of subsidised PM examinations in Wales was awarded to Iechyd Da, a consortium of independent veterinary practices based in Wales. *“Iechyd Da will work in collaboration with Aberystwyth University from the former APHA Veterinary Investigation Centre facility in Aberystwyth. They will be available to support veterinary businesses in Wales in their diagnostic work from early 2015”*. (APHA, 2014).

The Agency also stated that it is also *“looking at ways to improve pathology training for private vets. This would enhance the skills of private vets undertaking first opinion PMEs at fallen stock centres or elsewhere, further enabling the diagnosis of more common issues, as well as potentially providing surveillance data. A recent survey of private vets confirmed demand for such training and AHVLA is now working with potential training providers to explore how such training can best be developed. Further announcements are likely in early 2015.”* (APHA, 2014).

Continuing cause for concern

Despite the advanced stage of implementation of the closure of former AHVLA regional laboratories, there is as yet no indication of how the new systems of disease surveillance and intelligence sharing will actually work, let alone if they will be fit for purpose to deliver effective surveillance. This reduction in surveillance activity is particularly worrying at this time as African Swine Fever, which has recently been confirmed in Eastern Europe, and Porcine Epidemic Diarrhoea which has killed several millions of pigs in America, could spread to the UK. The threat from African Swine Fever has not gone unnoticed by the EU Commission. For the first time it has included Africa Swine Fever in its funding for the control of animal diseases and has allocated about €5.7 million for the implementation of eradication and control programmes (European Commission 2015).

Even prior to the commissioning of the SAG report, AHVLA’s ASSP document sounded a cautionary note: ***“Important residual risks include difficulty in implementation, in particular if stakeholders fail to engage with AHVLA, or if practitioners and farmers fail to make use of diagnostic service (however provided), particularly if prices are not competitive. Failure at***

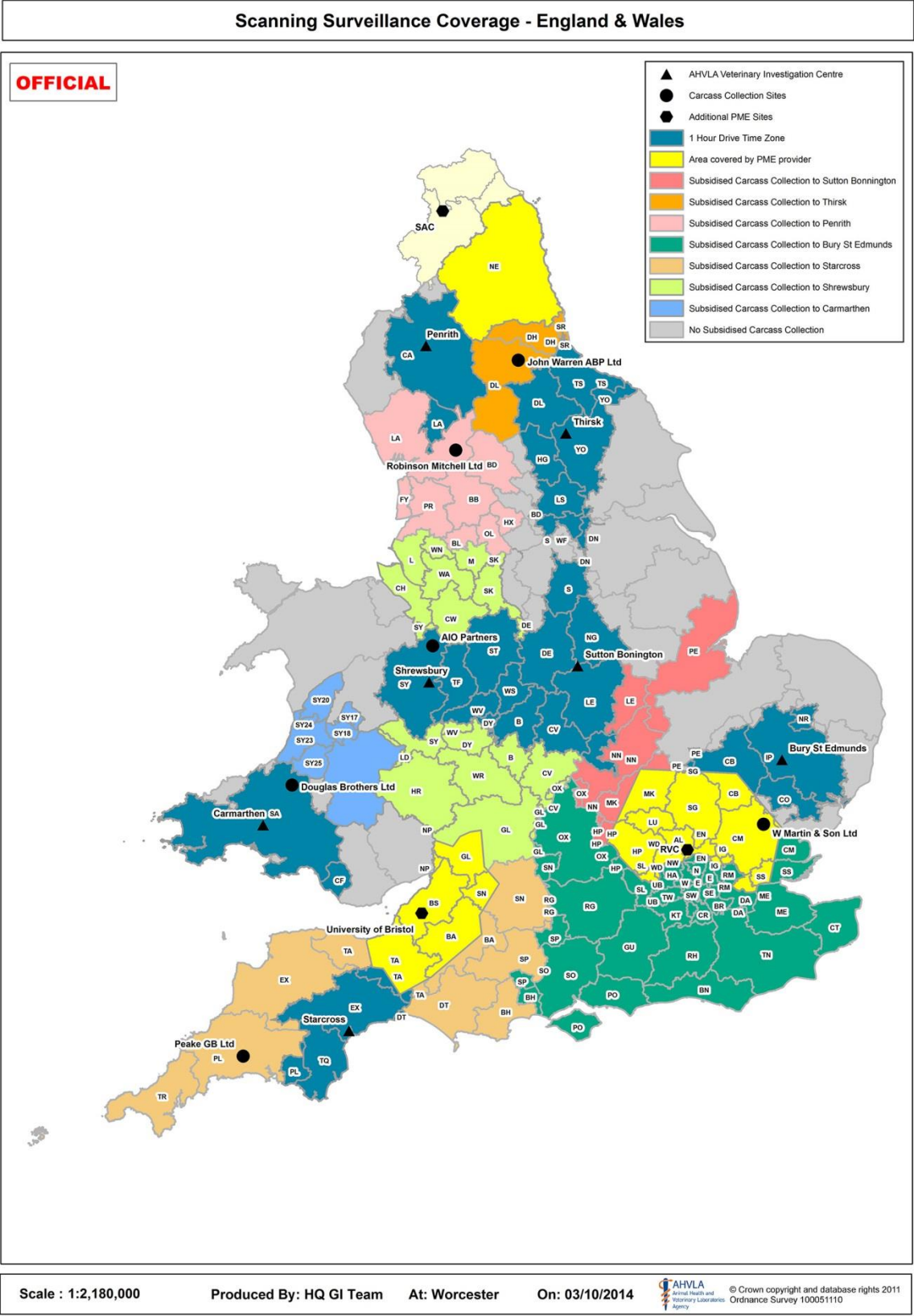
any of these could significantly delay detection of threats, potentially with major consequences”.

Despite the recent assertion by the Chief Veterinary Officer England that a key part of his role is “ensuring that all government animal disease decisions are based on scientific evidence” (Gibbens, 2012), the SAG report, the S2014 proposals and the Surveillance 2014 re-structuring appear to be based on a series of unfounded opinions and untested assumptions, rather than on a systematic consideration of available evidence, and indeed can be seen to contradict published scientific evidence. For example, in a comprehensive and systematic review of veterinary syndromic surveillance initiatives, Dórea and colleagues (2013) found that “*systems based on passive notification or data transfers are now dealing with sustainability issues*”, and they also state that “*diagnostic laboratories appear to provide the most readily available data sources for syndromic surveillance*”. This concept, using requests for laboratory testing has been further developed and in contrast to the methods involving passive notification, shows promise for sustainable syndromic surveillance analyses. Therefore, the S2014 restructuring, with a reduction in the amount of testing, will compromise application of these developments in syndromic surveillance in England and Wales.

Animal disease can cause serious social, economic and environmental damage, compromise animal welfare and threaten human health (DEFRA 2013). The one surveillance system that has had notable successes in the detection of new and re-emerging animal diseases, the Regional Laboratory Network in England and Wales with its engagement with local PVS, is being dismantled, with no prospect of an effective replacement. This can only be to the great detriment of public and animal health and the food and livestock industry (the latter was worth £11.5 billion in 2012 (National Statistics 2012)).

Surveillance for animal diseases matters very much indeed. The question should not be can we afford it but can we afford to take significant risks by cutting it?

Figure 1



BOX 1

A brief history of animal disease surveillance in England and Wales

The Animal Plant Health Agency (APHA) was formed in October 2014 by merging the Animal Health Veterinary Laboratories Agency (AHVLA) with parts of the Food and Environment Research Agency (FERA) responsible for plant and bee health to create a single agency responsible for animal, plant and bee health.

Until 2014, animal disease surveillance in livestock was primarily carried out by the Animal Health Veterinary Laboratories Agency (AHVLA) in England and Wales. The SAC Consulting Veterinary Service (C VS) division of Scotland's Rural College (SRUC) continues to provide national surveillance coverage in Scotland. Many of the examples cited in the text were detected in these laboratory systems.

AHVLA was a DEFRA agency formed as a merger of the Veterinary Laboratories agency (VLA), and Animal Health in 2011. The VLA in turn was a merger of the former Veterinary Investigation Service (VIS) and the Central Veterinary Laboratory. The VIS developed within an agricultural advisory service established in the late Edwardian period by agricultural colleges and university departments of agriculture when, after the first world war, representations were made by farming organisations for technical advice on veterinary matters, and the first veterinary advisory officer (later known as a Veterinary Investigation Officer – VIO) was appointed at Cardiff in 1922, and further appointments were made to 10 further centres. In 1946 the service was taken under the wing of the State Veterinary Service of the Ministry of Agriculture, and the VIOs and all other staff of the Veterinary Investigation Centres became Civil Servants.

The 1950s saw a great expansion of the VIS as practising vets came to rely increasingly on the diagnostic and advisory aid provided by the VI centres and the volume and variety of material received increased greatly, for example between 1953 and 1960 the intake of carcasses and viscera of cattle sheep and pigs more than doubled.

With the reorganisation of the Ministry of Agriculture on March 1st 1971, the Field Service and the VI Service of the Animal Health Division were integrated and incorporated with the whole of the Government veterinary service within the Agricultural Development and Advisory Service (ADAS). Much of ADAS was privatised in the mid 1980s, although the veterinary components remained within the public sector and in 1995 the VIS was amalgamated with the Central Veterinary Laboratories at Weybridge and Lasswade to form the Veterinary Laboratories Agency (VLA).

From a peak of 24 locations throughout England and Wales in the late 1960s, the number of VI Centres was strategically reduced by nearly 50% so that by the early 1990s immediately prior to the formation of VLA there were 14 centres - 2 in Wales and 12 in England.

In 2011 history repeated itself when 30 years after the Field Service and the VI Service had initially joined forces in 1971, a situation that was found to be impractical and reversed in the mid 1980s, the two branches of the Government veterinary service, now known as Animal Health and VLA respectively, merged once more and the remaining parts of VLA are now incorporated in the APHA.

BOX 2

The Surveillance Advisory Group Report's core recommendations and those particularly in relation to surveillance pathology

Core recommendation 1:

Establish a surveillance network that provides an improvement from the current level of approximately 50% of holdings and animals having access to a post-mortem facility or collection point within one hour's travel time, with the aim of achieving such access for 95% of holdings and animals".

Para 33 "To meet the stated aim, the centres of expertise will need to be supplemented by satellite sites....PMs at these sites will need to follow quality assured protocols. Implementation of Quality assurance will need to be explored further within this new model."

Para 33 "It is essential that any diagnostic and surveillance information from these satellite sites can be fed into the surveillance system."

Core recommendation 2:

Establish species-based centres of expertise providing in depth pathology and disease investigation services and a focus for surveillance information management, analysis and dissemination. These will require a case load that is sufficiently high to allow development and maintenance of required levels of expertise, which will influence the number of centres to be included in the surveillance system.

Para 37 "In order for a model to be successful, case load and data gathering has to be sufficient to identify unusual cases (as indicators of potential new diseases), and develop and maintain expertise".

Core recommendation 3:

Consider the current roles and responsibilities of existing AHVLA veterinary staff with a view to establishing different tiers of expertise compatible with variation in the technical knowledge requirements of the tiered surveillance network structure referred to in core recommendation 2. The suggested levels of expertise are investigators to support private vets, gross pathologists and subject-specific experts.

BOX 3

AHVLA's public consultation on the S2014 restructuring proposals

Options outlined for increasing access to post-mortem facilities

- Scenario 1: Six AHVLA post-mortem examination (PME) sites + Lasswade (poultry only) + four Surveillance Centres + 20 collection points
- Scenario 2: Four AHVLA PME sites + Lasswade (poultry only) + four Surveillance Centres + 21 collection points
- Scenario 3: Five AHVLA PME sites + Lasswade (poultry only) + 21 collection points

The AHVLA summary of responses to the S2014 consultation (May 2013)

AHVLA's summary of the Royal College of Pathologists response

"The Royal College of Pathologists fundamentally doubts that plans will meet standards required for diagnostic pathology. It was felt that the proposals fell far short of developing and sustaining pathology expertise; the cost and burden of training is not clear, nor is accountability or decision making. Assessment of competence is not mentioned, given the extreme shortage of suitable supervisors within AHVLA at present. The need to retain expertise through adequate throughput is not covered, nor the route intended to develop, for example, neuropathology specialist skills. AHVLA has a poor record in retaining trained pathologists. Workforce planning needs to be clearly addressed. The entire question of quality assurance needs to be considered, particularly in respect of second opinion histopathology work. The carcase collection service needs to be trialled, in relation to post-mortem deterioration, cost-effectiveness and standards for collection centres. A systematic comparison of accuracy of diagnosis of AHVLA post-mortems and those done by private veterinary surgeons should be completed. Data sharing proposals need testing, and appropriate funding. Finally, Health and safety requirements are highlighted as being potentially problematic if post-mortems are to be done outwith existing AHVLA facilities."

AHVLA's overall summary of responses recorded

"The majority of respondents reported concern that the proposals would not meet the defined objectives. A lack of detail, and a series of unproven assumptions were identified as problematic, together with issues around quality, geography and cost were all cited as reasons for these concerns. Loss of trust and confidence in AHVLA could result. However, there was general support for greater involvement of PVSs in scanning surveillance processes. This involvement would need to have a solid base of training and communication, and outcomes would have to balance quality and cost. However, there were some who thought that the regionalisation of services would undoubtedly damage the service considerably, reducing submissions and reducing the overall outputs from surveillance activities." With regard to the 'scenarios' presented, AHVLA records that "Most respondents disagreed that any of these options, even with a carcase collection service, would provide an adequate service. Cost, convenience and timeliness were cited as the main drivers which encouraged submissions. Many other issues were also important, including investigator availability, relationship maintenance, case history data collection, geographic location, capacity, collection times, delivery times, carcase identification, temperature controlled collection, autolysis, live collection, cleaning and disinfection facilities and the capability of the system to collect any carcase regardless of size from a physically and biologically secure collection point."

[\[http://www.defra.gov.uk/ahvla-en/files/surveillance14-consultation-summary.pdf\]](http://www.defra.gov.uk/ahvla-en/files/surveillance14-consultation-summary.pdf)

Box 4

The Animal Health and Welfare Board for England (AHWBE) Annual report, published May 2014.

https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/311765/ahwbe-annual-report-13-14.pdf

The Animal Health and Welfare Board for England (AHWBE) is responsible for strategic animal health and welfare policy, and oversight of implementation in relation to England, taking account of public health considerations.

The Animal Health and Welfare Board for England (AHWBE) is the principal source of departmental advice to Defra ministers on all strategic health and welfare matters relating to all kept animals in England.

The Board's role is to set the strategic policy framework, using it as the basis for day-to-day advice to ministers and day-to-day operational actions.

The board has strategic oversight of Defra policy in England in relation to:

- animal health
- animal welfare
- those public health implications of animal diseases that fall within Defra's remit
- transmission of disease to humans via animals
- all kept animals (including companion animals and aquaculture)

Case Study 7: Surveillance 2014 Strategy

The issue

Several reports, including the independently chaired Surveillance Advisory Group, had recommended improvements in the way veterinary scanning surveillance in England and Wales was carried out. The current system was becoming unaffordable following the reduction in budgets.

What we did

The AHVLA set up the Surveillance 2014 project to advise ministers in England and Wales on a more appropriate scanning surveillance system for the future. A public consultation was carried out with regional workshops and an on-line questionnaire.

An AHWBE member attended each of the regional workshops and provided valuable links to the wider livestock industry. Stewart Houston from AHWBE sat on the Surveillance 2014 project board and provided guidance, an external perspective and much wisdom and challenge. The AHWBE reviewed progress and documents for submission to Defra ministers, providing constructive criticism and guidance to ensure that the strategy was sufficiently ambitious that it could be sustained in the long term

Impact/Achievement

The public consultation achieved wide input with 221 people from 119 organisations attending one of the ten workshops, 113 answering the on-line questions and 43 ad hoc written contributions. Ministerial approval for the new system was given in November 2013 and implementation is underway.

The benefits of the new system will be -

- Improved coverage and representativeness of the surveillance system enabling early detection of new and re-emerging animal related threats.
 - A widening of the surveillance network, to include private practitioners, other providers such as universities and AHVLA facilities.
 - Increased stakeholder engagement and intelligence exchange with surveillance being a shared responsibly.
 - Developing and maintaining skill levels of all those working within the surveillance system.
- Improved affordability and increased sustainability of the system.

Summary of AHVLA responses to Freedom Of Information requests submitted by the College

Effectiveness of data analysis for detecting new threats

Amongst the documents considered by the SAG was the 2011 AHVLA Sustainable Surveillance Project (ASSP) report which, according to the SAG report suggested “*a change in emphasis, from relying so heavily on opportunist laboratory submissions and necropsy to detect new threats, to a more systematic engagement with stakeholders*”. The published information on the ASSP report included the statement that “*Estimated time to detect BSE is reduced (>2years to <1year)*”. In response to a FOI request for the AHVLA report and data on which this statement was based, the document provided contained the statement that “*it may be 3-12 months to piece together the early cases from the data alone*” with no accompanying data to support this contention.

The College also submitted a FOI request asking how many new and re-emerging animal related threats (NRTs) had been detected by AHVLA using data analysis techniques. The response indicated that in the last 5 years, no NRT had been flagged by analysis of ‘diagnosis not reached (DNR)’ either by overall DNR or by presenting sign or syndrome. Additionally AHVLA commented that, when flags of significant changes in DNR categories were further investigated, there was no evidence of an underlying threat and that in some cases the analyses were compromised by the small numbers involved. In a notable contrast, data from the same period shows that 31 NRTs in cattle alone were detected by AHVLA Veterinary Investigation Officer and pathologist casework. Yet the AHVLA restructuring will reduce the number of post-mortem examinations it carries out, thus further reducing the potential effectiveness of this tool.

In the light of this response, and the failure of the AHVLA data analysis techniques to flag any NRT, the statement that “*Estimated time to detect BSE is reduced (>2years to <1year)*” does not seem to have any basis in fact. In contrast, application of current molecular and cellular pathology techniques would allow confirmation of a transmissible bovine spongiform encephalopathy (BSE) in the first case of BSE submitted for laboratory examination within days, i.e. in real time. Similarly, prompt laboratory analysis was the pivotal component of the identification of Schmallenberg virus.

Effectiveness of practitioner post-mortem examinations

As a means of assessing effectiveness of practitioner post-mortem investigations, a further FOI request was submitted to AHVLA to obtain data on diagnostic rates for various types of laboratory submission to AHVLA. The AHVLA response stated that “*we do not hold the data of who is involved with gross examination*” however it is a reasonable assumption that the large majority of external post-mortem (PM) submissions derive from practising veterinary surgeons (PVS) PMs. The data supplied by AHVLA indicates that the diagnosis achieved rate for PMs, undertaken at AHVLA laboratories, is consistently above 70% for cattle, small ruminants, pigs and poultry. The diagnosis achieved rate for submissions from PMs undertaken outwith the AHVLA is consistently substantially lower. Given the uncertainty during and post-S2014 implementation surrounding methods of cattle carcase collection, and the practical difficulties and potential risks to animal and human health involved in dissecting and re-sealing a large carcase on farm, the difference in diagnostic rates for cattle is worthy of particular consideration. For cattle PM submissions to AHVLA in 2012, the diagnosis achieved rate for carcase submissions was 80.1%, whereas for a similar number of external submissions the diagnosis achieved rate was 34.5%, with a similar discrepancy in previous years. It would be wrong to assume that this low diagnostic rate for external submissions could be substantially increased. Not only is it unlikely that adequate training and on-going assessment of PVS necropsy competences will be economically viable, but other factors may also be involved, such as deterioration of samples during transit to the testing laboratory.

Information on which the SAG report was based

A request was made for a copy of an internal AHVLA document ‘Delivery of scanning surveillance in AHVLA’ referenced by SAG final report. This request was refused with the following explanation “the document contains inaccuracies and is more of a discussion document as it contains many personal comments by the reviewers. The SAG Final Report references the document because some of the relevant information from the interim report is used in the final report.”

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* At the time of writing in January 2015, the links denoted with an asterisk are obsolete and the documents should be requested from the APHA.

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