



Monitoring the field occurrence of appropriate animal diseases can highlight the potential for zoonotic transmission and provide a sentinel for human, environmental and foodborne health risks. These reports, which primarily relate to farmed animal species, summarise the surveillance activities of the Animal Health and Veterinary Laboratories Agency (AHVLA) and the Scottish Agricultural College Consulting, Veterinary Services (SACCVS, operating within Scotland's Rural College – SRUC) for non-statutory zoonoses and infections shared between man and animals in Great Britain, using data gathered by the network of diagnostic laboratories. Quantitative diagnostic data for all of GB is provided by the Veterinary Investigation Diagnostic Analysis (VIDA) surveillance system. Summaries of joint veterinary/medical investigations into incidents and outbreaks of non-statutory zoonotic disease and associated activities are also included. This report covers the three month period between April and June 2014.

The Non-Statutory Zoonoses project (FZ2100) is funded by Defra, the Scottish Government and the Welsh Government through the AHVLA's Food and Environmental Safety programme and also uses returns from the Emerging Diseases and Welfare programmes. Information concerning compulsorily notifiable or reportable zoonoses is recorded elsewhere under other projects, such as FZ2000 (Salmonella).

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General scanning surveillance

1.1 Non-Statutory Zoonoses VIDA data for Great Britain: April – June 2014

This table (collated 25/07/2014) summarises clinical diagnoses of non-statutory zoonoses and infections shared between animals and humans from specimens submitted to AHVLA and SACCVS disease surveillance centres between April and June 2014 and compares the findings with the same quarter (Q2) in 2013 and 2012. It includes rare zoonotic infections and those for which zoonotic potential is confined predominantly to immuno-compromised individuals. Diagnoses use strict criteria and are recorded (once only per incident) using the Veterinary Investigation Diagnostic Analysis (VIDA) system. The list is subject to selection, submission and testing bias. It is not definitive and excludes notifiable or reportable diseases (notably salmonellosis, which is recorded elsewhere). It is intended only as a general guide for veterinary and public health professionals to the diagnosed occurrence of animal-associated infections in predominantly farmed animal species in GB.

Diagnosis	Q2 total (all species)			Q2 diagnoses in 2014						
	2012	2013	2014	Cattle	Sheep	Goats	Pigs	Birds ¹	Misc.	Wildlife ²
Babesiosis	4	5	3	3						
<i>Brachyspira pilosicoli</i> / intestinal spirochaetosis	8	5	7				5	2		
<i>Brucella</i> spp. in marine mammals	2	0	0						0	0
Campylobacter fetopathy	6	21	23	5	18	0			0	0
Chlamydiosis (<i>C. psittaci</i>)	1	1	0					0		
<i>Chlamydophila abortus</i> fetopathy	59	29	56	0	56	0			0	0
<i>Coryne. pseudotuberculosis</i> (CLA)	11	13	12		12	0				
Cryptosporidiosis	409	493	336	293	40	2	0	1	0	0
Cysticercosis	0	1	1		1					
<i>Dermatophilus</i> infection	0	1	0	0	0	0		0	0	
Erysipelas	13	9	3		0	0	1	2		
Fasciolosis	210	445	112	83	28	0			1	0
Hydatidosis	0	0	0		0					
Leptospirosis (all categories)	0	0	0	0	0	0	0		0	0
Listeriosis (all categories)	42	50	46	13	29	3	0	0	1	0
Louping ill	9	9	16	1	15			0		
Orf (parapox virus)	13	18	6		6	0				
<i>Pasteurella multocida</i> pneumonia/pasteurellosis	71	72	50	15	25	8	0	2	0	0
Pseudocowpox (parapox virus)	0	0	0	0						
Q Fever/ <i>Coxiella burnetii</i>	0	2	0	0	0	0			0	0
Red Mite (<i>Dermanyssus galinae</i>)	2	1	0					0		
Ringworm	5	0	1	1	0	0	0	0	0	0
<i>Sarcoptes scabiei</i> infection	2	0	1	0		0	1		0	
Streptococcal infection (excluding bovine mastitis)	24	29	9		3	0	6	0	0	0
Swine influenza	4	8	8				8			
Toxoplasmosis (incl. fetopathy)	58	26	47		45	2			0	0
Tuberculosis (excl. bovine TB)	7	9	4			1	0	3	0	0
Yersiniosis (incl. fetopathy)	2	1	4		2	1		1	0	0

Shaded boxes indicate a diagnosis is not available for that species

¹ Includes both domestic and wild birds ² Mammals only ³ Miscellaneous exotic farmed species

Comments

There was an overall decline in the number of diagnostic submissions to AHVLA and SACCVS disease surveillance centres for the second quarter of 2014 in comparison to the same period last year. The decline applied to all animal species but was seen most significantly in cattle, sheep and pig submissions. Changes in submission levels and selection of diagnostic tests must be taken into account when interpreting any trends.

There was a dramatic decline in the number of diagnoses of both bovine and ovine chronic fasciolosis compared to the same quarter in 2013, with levels now returning to those seen in 2012 and previous years. Fasciolosis is a rare zoonosis and the prevalence of infection in livestock is often linked to climatic conditions.

There were 16 diagnoses of louping ill made this quarter, 10 of these incidents were in Scotland, three in Wales and three in England. One incident involved a suckler calf with nervous signs, with the remainder of diagnoses being made in sheep. Further information on louping ill is given in section 1.2.

In pigs, there were eight incidents of swine influenza diagnosed during the quarter, all on farms in England. Swine influenza A(H1N1)pdm09 was the most common strain identified, but H1N2 was also detected.

Common minor conditions, such as orf and ringworm, of zoonotic importance are grossly underestimated by the VIDA recording and reporting system.

More detailed specific information on scanning surveillance diagnoses and trends for endemic diseases is available from: <http://www.defra.gov.uk/ahvla-en/category/publications/disease-surv/surv-reports/>

1.2 Highlights from AHVLA and SRUC disease investigation centres

This section provides a summary of main items of zoonotic interest from material submitted to the AHVLA (England and Wales) and SACCVS (Scotland), during the period April – June 2014. Further information is provided in the quarterly reports by the AHVLA species groups and the monthly surveillance reports in the Veterinary Record derived from the Emerging Diseases and Welfare programme. Both sets of these reports may be found at: <http://www.defra.gov.uk/ahvla-en/category/publications/disease-surv/surv-reports/>

Louping ill

Louping ill is an acute encephalomyelitis caused by a tick-borne flavivirus. It occurs in upland pastures in GB and Ireland, which provide favourable humidity conditions for the vector *Ixodes ricinus*. The disease affects mainly sheep, but many other species including cattle and red grouse may less frequently be affected. Louping ill is a zoonosis, although human cases are uncommon and are most frequently recorded in laboratory or abattoir workers. Further information on human infection can be found on the Public Health England website:

<http://www.hpa.org.uk/Topics/InfectiousDiseases/InfectionsAZ/LoupingIll/GeneralInformation/>

Louping ill was diagnosed a number of times in sheep this quarter. Typically sheep had been turned out to tick-infected pasture two to four weeks prior to the onset of clinical signs, which included sudden death, recumbency, convulsions, ataxia and pyrexia. Of the submissions to AHVLA disease surveillance centres, typically between 5-10% of the flock were reported to be affected and heavy tick infestations on animals were frequently described. In endemic areas, adult animals are generally immune to louping ill virus, and clinical louping ill is classically seen in young sheep in which colostrum derived immunity has waned. Introduction of naïve sheep into endemic areas can result in large numbers of losses. Control of louping ill relies on the use of acaricides to control tick infestations, and vaccination may also be useful to control losses in highly infected areas.

2. Specific scanning and targeted surveillance and other studies

2.1 Campylobacter

Human campylobacteriosis due to thermophilic campylobacters is the most commonly reported bacterial cause of food poisoning in Great Britain, although non-thermophilic strains (such as *C. fetus*) can also (rarely) cause severe zoonotic illness.

A total of 27 isolates, mainly from ruminant abortion cases in England and Wales, were examined and identified at AHVLA - Starcross during the period April – June 2014. Of the 16 ovine isolates, 14 (88%) were *C. fetus fetus*, and the remaining two isolates were the thermophilic strain *C. coli*. Of the 10 bovine isolates, five were *C. fetus venerealis intermedius* and the other five were the thermophilic *C. sputorum*. A single isolate from a chicken was further identified as *C. coli*.

A total of 15 campylobacter isolates were identified from livestock by SACCVS during the second quarter of 2014: there were 13 isolates from sheep and two from cattle. Twelve of the ovine isolates were derived from abortion cases and comprised five *C. fetus fetus*, six *C. jejuni*, and one was *C. lari*. The other ovine isolate was a *C. jejuni* from a faeces sample. The bovine isolates were further identified as *C. fetus venerealis intermedius* and *Campylobacter fetus* (further identification not undertaken).

There were also 16 canine and one feline isolate identified by SACCVS, which were all from faeces samples. The feline and eight of canine strains were *C. upsaliensis*. The other isolates from dogs were five *C. jejuni*, two *C. coli* and one *Campylobacter spp.* which was not identified further.

2.2 Leptospirosis

Targeted surveillance by AHVLA for leptospirosis is variously achieved by analysis of results from: (1) RT-PCR for pathogenic leptospires on appropriate diagnostic samples, sequencing and denaturing high pressure liquid chromatography (DHPLC); (2) Microscopic agglutination test (MAT) antibody testing on sera submitted for disease diagnosis, monitoring and export (mainly dogs). Diagnostic MAT titres are considered seropositive at 1/100 or above (1/50 for *L. Hardjo bovis* in cattle) and; (3) Bulk milk tank antibody testing (by ELISA) of samples submitted from dairy herds for monitoring purposes. The latter two methods are influenced by vaccination (dogs and cattle); MAT results are also very dependent on the range of serology (pools or single serovars) undertaken.

(1) Between April and June 2014 a total of 17 specimens (mainly kidneys from cattle and pigs) from 15 separate submissions were examined by real-time PCR for pathogenic leptospires. No pathogenic leptospires were detected in any of the samples. One of the samples submitted was unsuitable for testing.

(2) 1640 serum samples from a range of species were examined this quarter. Of 296 canine sera, 6.17% and 5.6% were positive to *L. Canicola* and *L. Icterohaemorrhagiae* respectively, compared to 20.6% and 12.3% for the same quarter last year; of 827 bovine samples examined for *L. Hardjo bovis*, 20.0% were positive (22.3% in 2013); 22.1% of 104 porcine samples tested for *L. Bratislava* were positive (12.3% in 2013). Other significant serovars noted included 10 dogs positive to *L. Bratislava*, one positive to *L. Zannoni*, 12 positive to *L. Copenhageni* and one horse was seropositive to *L. Icterohaemorrhagiae*.

(3) Between April and June 2014, 40 (34.8%) of 115 bulk milk *L. Hardjo* antibody tests undertaken for monitoring purposes were negative, ten (8.7%) were low-positive, nine (7.8%) were mid-positive and 56 (48.7%) were high positive. In 2013, comparable figures for the same quarter (106 tests) were 43.4% negative, 3.8% low positive, 4.7% mid positive and 48.1% high positive. These findings indicate serological evidence of potentially active infection in about 55-60% of dairy herds from the population submitting samples. The significance of these observations is heavily influenced by vaccination status and selection, although it is thought unlikely that fully vaccinated herds contributed many samples.

2.3 Mycobacteria (excluding *M. bovis*)

Since *Mycobacterium bovis* became notifiable in all species in 2006, the number of samples examined by AHVLA Weybridge has increased, particularly from pets and camelids. Samples from pigs are mainly submitted by meat inspectors. A summary of potentially zoonotic non-statutory mycobacteria identified during the first six months of 2014 is provided below, yearly figures are provided in the annual (Q4) report.

Species	Pig	Cat	Wallaby
<i>M. avium</i>	2		1
<i>M. microti</i>		1	

2.4 *Streptococcus suis*

Streptococcus suis isolates from diagnostic material submitted to AHVLA and SACCVS disease surveillance centres are typed further for disease surveillance purposes. The numbers and serotypes from porcine diagnostic material submitted during the period April – June 2014 are shown below with data for the same quarter in previous years for comparison. Please note that the 2012 figures were the first to include SACCVS data, data from Scotland is not included in the figures prior to 2012. UT = untypeable

Q2 Year	1	2	3	4	5	7	8	9	10	14	16	19	22	33	1/2	UT
2010 (E&W)	6	17	6	5		4	2	2		3			1		1	1
2011 (E&W)	1	12	2	2		3	2			1	1				8	3
2012 (GB data)	2	14	1	2	1	3						1				2
2013 (GB data)	3	8	2	1	1	1	1	1		1				1	1	
2014 (GB data)		4		1	1	2	1	2	1	1	1					

There were fewer isolates examined this quarter, *Streptococcus suis* type 2 again predominated, but a significant spread across serotypes is seen.

2.5 Toxoplasmosis

The European Food Safety Authority (EFSA Journal 2007, 583, 1-64) highlighted the significance of toxoplasmosis as a foodborne zoonosis and the need to improve surveillance in this field. Serological examinations for *Toxoplasma gondii* using the latex agglutination test (LAT) are undertaken by the AHVLA on sera submitted to RLs. The findings presented below provide a summary of the serological status of samples submitted for diagnosis, monitoring and screening purposes during the period April to June 2014, but do not constitute a structured survey. Positive samples, as defined here, have LAT titres of 1/64 or greater and indicate a history of exposure to this protozoan parasite.

In sheep in the second quarter of 2014, 93 (75%) of 124 sera tested (from 28 separate submissions) were positive for antibody to *T. gondii*. Two samples were received from goats on a single premises; both tested seropositive. A single calf serum sample and a single pig serum sample both tested negative.

3. Investigations into zoonotic and potentially zoonotic incidents

Protocols for the investigation of zoonotic disease incidents in England and Wales are set out in the following document: [Guidelines for the Investigation of Zoonotic Disease \(England and Wales\)](#). Similar guidance on the investigation and management of zoonotic disease in Scotland has recently been updated: [Guidelines on the roles and responsibilities of agencies involved in the investigation and management of zoonotic disease in Scotland](#)

AHVLA collaborations with Public Health England (PHE, an executive agency of the Department of Health) in the investigation of zoonotic incidents are also included in the [Zoonoses Network Newsletters](#).

An industry Code of Practice (CoP) on preventing or controlling ill health from animal contact at visitor attractions gives guidance to owners, operators and managers of such visitor attractions. The CoP has been produced by the industry and replaces Health and Safety Executive guidance note AIS23, which has been withdrawn. The document can be downloaded from the [Farming and Countryside Education \(FACE\) website](#)

Advice for members of the public planning a trip to animal-associated visitor attractions and other information can be found on the [PHE Zoonoses Webpages](#)

3.1 Cryptosporidiosis

Investigations to assist in human outbreaks of cryptosporidiosis linked to direct contact with animals are undertaken at the request of Consultants in Communicable Disease Control (CsCDC) of PHE/PHW and in collaboration with the National Cryptosporidium Reference Unit, Swansea and follow jointly agreed guidelines.

No investigations this quarter.

3.2 VTEC O157

Verocytotoxin-producing *E. coli* (VTEC) O157 outbreak investigations are undertaken, according to agreed guidelines, at the request of CsCDC of PHE/PHW where an animal-associated source is suspected, and variously involve collaboration with other organisations, including the Environmental Health departments of Local Authorities and the Health and Safety Executive. Determination of phage type (PT), verocytotoxin (VT) type, and comparison of human and animal isolates by variable number of tandem repeat (VNTR) analysis are performed by the Gastrointestinal Infections Reference Unit of the Laboratory of Gastrointestinal Pathogens, PHE Colindale. If isolates from animals circumstantially implicated in outbreaks have the same PT and indistinguishable VNTR profiles from human cases, this is taken as confirmatory evidence of a causal association. In practice, there can be minor VNTR profile variation at a single tandem repeat locus amongst some isolates associated with an outbreak investigation. Other VTEC O157 PTs may be detected incidentally during the investigation of animal premises.

In April, AHVLA assistance was requested in the investigation of a relatively large outbreak of VTEC O157 PT 21/28 in visitors to a lambing event held at a country store in the North West of England. A total of 15 laboratory confirmed cases (including one staff member) and 15 possible cases (defined as people who visited the premises and reported symptoms but who were not microbiologically confirmed) were identified. Several of the cases developed haemolytic uraemic syndrome (HUS). During the lambing event, visitors could observe ewes lambing and hold and bottle feed orphan lambs which were housed in a polytunnel shed adjacent to the country store. Ferrets and ducklings were also on display. VTEC O157 PT 21/28 was isolated from adult ewes, suckling lambs and orphan lambs and molecular testing confirmed the animal isolates were indistinguishable from the human isolates, confirming the lambing event as the source of the outbreak. Many areas of non-compliance with the industry Code of Practice were identified, including a failure to adequately inform visitors of the risk of zoonoses and how to prevent infection and a failure to control contamination of visitors with animal faeces. Due to the ongoing challenges of controlling zoonotic risk on this premises and the scale of the outbreak, the lambing event was closed prematurely.

In June, AHVLA assistance was requested in the investigation of three cases of VTEC O157 PT 21/28 in children visiting an open farm in the Yorkshire and Humber Region. AHVLA provided advice to the Outbreak Control Team, but no veterinary visit was required on this occasion.