



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 and Plant Health Agency (APHA)* 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 July and September 2014.

The Non-Statutory Zoonoses project (FZ2100) is funded by Defra, the Scottish Government and the Welsh Government through the APHA'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).

*The APHA was formed on 1st October 2014 following the merger of the former Animal Health and 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.

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General scanning surveillance

1.1 Non-Statutory Zoonoses VIDA data for Great Britain: July – September 2014

This table (collated 24/10/2014) summarises clinical diagnoses of non-statutory zoonoses and infections shared between animals and humans from specimens submitted to APHA and SACCVS veterinary investigation centres between July and September 2014 and compares the findings with the same quarter (Q3) 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	Q3 total (all species)			Q3 diagnoses in 2014						
	2012	2013	2014	Cattle	Sheep	Goats	Pigs	Birds ¹	Misc.	Wildlife ²
Babesiosis	5	4	4	4						
<i>Brachyspira pilosicoli</i> / intestinal spirochaetosis	14	6	5				3	2		
<i>Brucella</i> spp. in marine mammals	1	0	0						0	0
Campylobacter fetopathy	6	4	4	3	1	0			0	0
Chlamydiosis (<i>C. psittaci</i>)	1	0	1					1		
<i>Chlamydophila abortus</i> fetopathy	1	2	0	0	0	0			0	0
<i>Coryne. pseudotuberculosis</i> (CLA)	19	20	18		17	1				
Cryptosporidiosis	139	125	116	113	0	1	1	1	0	0
Cysticercosis	0	0	1		1					
<i>Dermatophilus</i> infection	4	0	0	0	0	0		0	0	
Erysipelas	11	9	11		0	0	9	2		
Fasciolosis	169	263	89	57	30	1			1	0
Hydatidosis	0	1	0		0					
Leptospirosis (all categories)	4	1	1	1	0	0	0		0	0
Listeriosis (all categories)	20	15	8	1	6	1	0	0	0	0
Louping ill	7	13	11	2	9			0		
Orf (parapox virus)	18	15	9		9	0				
<i>Pasteurella multocida</i> pneumonia/pasteurellosis	48	43	22	13	2	0	6	1	0	0
Pseudocowpox (parapox virus)	0	0	0	0						
Q Fever/ <i>Coxiella burnetii</i>	2	1	1	1	0	0			0	0
Red Mite (<i>Dermanyssus galinae</i>)	13	8	4					4		
Ringworm	2	2	3	3	0	0	0	0	0	0
<i>Sarcoptes scabiei</i> infection	0	0	0	0		0	0		0	
Streptococcal infection (excluding bovine mastitis)	26	17	16		2	0	14	0	0	0
Swine influenza	7	7	4				4			
Toxoplasmosis (incl. fetopathy)	0	0	0		0	0			0	0
Tuberculosis (excl. bovine TB)	8	9	4			0	0	3	1	0
Yersiniosis (incl. fetopathy)	1	1	2		0	1		0	1	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 a sharp decline in the number of submissions of cattle diagnostic material in the third quarter of 2014 in comparison to the same period last year. This decline was due to a reduction in cattle submissions from England and Wales to APHA veterinary investigation centres. Sheep diagnostic submissions, which are typically lower at this time of year, remained stable. In pigs, an increased number of submissions from farms in Scotland to SACCVS disease surveillance centres was seen. Changes in submission levels and selection of diagnostic tests must be taken into account when interpreting any trends.

Although an absolute decline in the number of diagnoses of cryptosporidiosis is recorded, when taken in context of declining cattle submissions, the relative proportion of cryptosporidiosis cases increased with the vast majority of cases occurring in housed calves at this time of year.

Incidents of fasciolosis decreased. A single diagnosis of fasciolosis was made in a reindeer which died of chronic liver damage due to infection with *Fasciola hepatica*. Fasciolosis is a rare zoonosis and the prevalence of infection in livestock is often linked to climatic conditions.

There was a single diagnosis of Q fever this quarter, on a dairy farm in the south west of England. A number of cows had aborted over the course of one week, and the presence of *Coxiella burnetti* was confirmed using PCR testing. Information and zoonotic advice was provided through the provision of the information sheet:

[Q fever: information for farmers](#)

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 APHA and SACCVS veterinary investigation centres

This section provides a summary of main items of zoonotic interest from material submitted to the APHA (England and Wales) and SACCVS (Scotland), during the period July – September 2014. Further information is provided in the quarterly reports by the APHA 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/>

***Erysipelothrix rhusiopathiae* infections**

Erysipelothrix rhusiopathiae is the aetiological agent of swine erysipelas which may present variously as an acute cutaneous condition “diamond skin disease”, or as septicaemia, or in a more chronic form as arthritis or endocarditis. *E. rhusiopathiae* is also a recognized pathogen in sheep where it may cause septicaemia or polyarthritis (“post dipping lameness”) and it has also been identified as a cause septicaemia in birds. In humans, *E. rhusiopathiae* usually causes a localized cellulitis (erysipeloid). The bacteria are introduced accidentally from infected animals through pre-existing skin wounds. Human erysipeloid is largely an occupational disease of slaughterhouse workers, agricultural workers, and those in the meat-handling and fishing industries. Further information on human infection can be found in the interim period on the archive HPA webpages:

<http://webarchive.nationalarchives.gov.uk/20140714084352/http://www.hpa.org.uk/Topics/InfectiousDiseases/InfectionsAZ/Erysipeloid/>

Infection with *E. rhusiopathiae* was diagnosed a number of times in pigs this quarter. In one case, the infection presented as septicaemia in three-week-old pre-weaned piglets. Four piglets out of a litter had died after a very short period of listlessness. Pure growths of *E. rhusiopathiae* were isolated from multiple internal sites, confirming the diagnosis. Another case involved a young breeding boar which had arrived on the farm two weeks earlier. The boar was found dead with no prior signs. Post-mortem examination revealed severe vegetative endocarditis and *E. rhusiopathiae* was isolated from the heart valve. In both cases, vaccination was suggested as a means of controlling disease on the units.

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 25 isolates, mainly from ruminant abortion or infertility cases in England and Wales, were examined and identified at APHA - Starcross during the period July to September 2014. Of the 22 bovine isolates, 15 (88%) were *C. sputorum*, two were *C. jejuni*, two were *C. coli*, two were *C. fetus fetus* and one was *C. fetus venerealis intermedius*. Two ovine isolates were further identified as *C. fetus fetus*. A single avian isolate from a laying hen (*Gallus gallus*) was identified as *C. coli*.

In Scotland during the third quarter of 2014, Campylobacter was isolated by SACCVS from livestock on seven occasions. All isolates were derived from cattle abortion or infertility investigations. All seven isolates were confirmed as *C. fetus* and five isolates were subtyped further as *C. fetus venerealis intermedius*.

Campylobacter was also isolated from faecal samples from 56 dogs, two cats and one rabbit. Of the canine isolates, 30 were *C. upsaliensis*, 11 *C. jejuni*, six *C. coli*, four *C. lari* and five were identified as *Campylobacter* spp.. The feline isolates were *C. upsaliensis* and *Campylobacter* spp., and isolate received from the rabbit was further identified as *C. jejuni*.

2.2 Leptospirosis

Targeted surveillance by APHA for leptospirosis is variously achieved by analysis of results from: (1) RT-PCR for pathogenic leptospire 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 July and September 2014, a total of 38 specimens (mainly kidneys from cattle and pigs) from 18 separate submissions were examined by real-time PCR for pathogenic leptospire. No pathogenic leptospire were detected in any of the samples. Eight of the samples submitted were unsuitable for testing.

(2) 1541 serum samples from a range of species were examined. Of 288 canine sera, 10.5% and 6.55% were positive to *L. Canicola* and *L. Icterohaemorrhagiae* respectively, compared to 19.8% and 18.2% for the same quarter last year; of 669 bovine samples examined for *L. Hardjo bovis*, 23.0% were positive (27.0% in 2013); 43.6% of 142 porcine samples tested for *L. Bratislava* were positive (34.0% in 2013). Other significant serovars noted included five horses positive to *L. Bratislava* and eight dogs positive to *L. Copenhageni*.

(3) Between July and September 2014, 33 (37.5%) of 88 bulk milk *L. Hardjo* antibody tests undertaken for monitoring purposes were negative, 14 (15.9%) were low-positive, five (5.7%) were mid-positive and 36 (40.9%) were high positive. In 2013, comparable figures for the same quarter (120 tests) were 38.3% negative, 8.3% low positive, 7.5% mid positive and 44.2% high positive. These findings indicate serological evidence of potentially active infection in about 47% 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 APHA 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 was provided in the Q 2 report, and yearly figures will be provided in the annual (Q4) report.

2.4 *Streptococcus suis*

Streptococcus suis isolates from diagnostic material submitted to APHA and SACCVS veterinary investigation centres are typed further for disease surveillance purposes. The numbers and serotypes from porcine diagnostic material submitted during the period July – September 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

Year	1	2	3	4	5	7	8	9	10	14	16	21	31	1/2	UT	Total
2010 (E&W)	3	10	3	2		1	2	2	1	1	1		1		1	28
2011 (E&W)	2	6	2	1		2	1			2				3		19
2012 (GB)	5	13	1			3		1	1	2				2		27
2013 (GB)	4	6		1		1	2			5	1	1			1	22
2014 (GB)	1	7				2	1		1	1				1	1	15

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 APHA on sera submitted to VICs. The findings presented below provide a summary of the serological status of samples submitted for diagnosis, monitoring and screening purposes during the period July to September 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 third quarter of 2014, 88 (78%) of 113 sera tested (from 11 separate submissions) were positive for antibody to *T. gondii*. Two samples were received from goats on a single premises; one sample tested seropositive and one tested seronegative.

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](#)

APHA 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.

No investigations this quarter.