Health Protection Agency

The Human Animal Infections and Risk Surveillance (HAIRS) Group

2011/ 2012 Report






Department for Environment Food & Rural Affairs

AHVLA Animal Health and Veterinary Laboratory Agency

DH Department of Health

Food Standards Agency food.gov.uk

The Scottish Government

Health Protection Scotland

NHS National Services Scotland

Llywodraeth Cymru Welsh Government

GIG CYMRU NHS WALES Iechyd Cyhoeddus Cymru Public Health Wales

HSC Public Health Agency

Department of Agriculture and Rural Development www.dardni.gov.uk

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The Human Animal Infections and Risk Surveillance Group (HAIRS) members 2011

HEALTH PROTECTION AGENCY (HPA)

Gastrointestinal, Emerging and Zoonotic Infections Department, Health Protection Services:

Dilys Morgan (Chair)	Head of Department
Hilary Kirkbride	Consultant Epidemiologist
Amanda Walsh	Senior Scientist
Kate Halsby	Senior Scientist

Virus Reference Department, Microbiology Services:

David Brown	Director and Consultant Medical Virologist

Microbial Risk Assessment, Emergency Response Department, Health Protection Services:

Jolyon Medlock	Head of Medical Entomology

PUBLIC HEALTH WALES (PH WALES)

Communicable Disease Surveillance Centre, Health Protection Division:

Robert Smith	Clinical Scientist (Zoonoses)

PUBLIC HEALTH AGENCY NORTHERN IRELAND

Michael Devine	Consultant Health Protection

DEPARTMENT FOR ENVIRONMENT, FOOD AND RURAL AFFAIRS (DEFRA)

Zoonoses Team:

Stephen Wyllie	Head of Zoonoses team
Andrew Frost	Veterinary Advisor (AHVLA)
Lesley Larkin	Veterinary Advisor (AHVLA)

ANIMAL HEALTH AND VETERINARY LABORATORIES AGENCY (AHVLA)

(Formerly two separate organisations, "Animal Health" and "Veterinary Laboratories Agency", which combined on 1st April 2011 to become AHVLA)

Graham David	Emerging Diseases and Welfare Programme Manager (->July 2011)
Geoff Pritchard	Project Leader for Non-Statutory Zoonoses (->July 2011)
Charlotte Featherstone	Project Leader for Non-Statutory Zoonoses

Paul Hutchinson	Deputy Leader of Non-Statutory Zoonoses
Cameron Stewart	Veterinary Officer and Specialist in Veterinary Public Health
Linda Smith	Veterinary Team Leader

FOOD STANDARDS AGENCY (FSA)

Food Hygiene and Microbiology:

Geraldine Hoad	Head, Food Production Branch
Sophie Rollinson	Senior Scientific Officer, Food Production Branch

DEPARTMENT OF HEALTH (DH)

Infectious Diseases and Blood Policy Department:

Maggie Tomlinson	Portfolio Manager, Emerging Infections and Zoonoses
Charlie Mirrielees	Assistant Portfolio Manager, Emerging Infections and Zoonoses

HEALTH PROTECTION SCOTLAND (HPS)

Dominic Mellor	Veterinary Consultant

THE SCOTTISH GOVERNMENT

Agriculture, Food and Rural Communities Directorate:

Sheila Voas	Deputy Chief Veterinary Officer (->June 2011)
	Acting Chief Veterinary Officer (June 2011->)

NATIONAL EXPERT PANEL ON NEW AND EMERGING INFECTIONS (NEPNEI)

Andrew Hall	Chair of NEPNEI

The Human Animal Infections and Risk Surveillance Group (HAIRS) members 2012

HEALTH PROTECTION AGENCY (HPA)

Gastrointestinal, Emerging and Zoonotic Infections Department, Health Protection Services:

Dilys Morgan (Chair)	Head of Department
Hilary Kirkbride	Consultant Epidemiologist
Amanda Walsh	Senior Scientist
Catherine O'Connor	Scientist (July 2012->)

Virus Reference Department, Microbiology Services:

David Brown	Director and Consultant Medical Virologist

Microbial Risk Assessment: Emergency Response Department, Health Protection Services:

Jolyon Medlock	Head of Medical Entomology

PUBLIC HEALTH WALES (PH WALES)

Communicable Disease Surveillance Centre, Health Protection Division:

Robert Smith	Clinical Scientist (Zoonoses)

THE WELSH GOVERNMENT

Office of the Chief Veterinary Officer:

Arjen Brouwer	Veterinary Advisor (April 2012->)

PUBLIC HEALTH AGENCY, NORTHERN IRELAND

Michael Devine	Consultant Health Protection

DEPARTMENT OF AGRICULTURE AND RURAL DEVELOPMENT (DARD), NORTHERN IRELAND

Chief Veterinary Officer Group:

Paddy McGuckian	Veterinary Officer (Zoonoses) (September 2012->)

DEPARTMENT FOR ENVIRONMENT, FOOD AND RURAL AFFAIRS (DEFRA)

Zoonoses Team:

Stephen Wyllie	Head of Zoonoses team
Andrew Frost	Veterinary Advisor (AHVLA)

Lesley Larkin	Veterinary Advisor (AHVLA)

ANIMAL HEALTH AND VETERINARY LABORATORIES AGENCY (AHVLA)

Charlotte Featherstone	Project Leader for Non-Statutory Zoonoses
Paul Hutchinson	Deputy Leader of Non-Statutory Zoonoses
Cameron Stewart	Veterinary Officer and Specialist in Veterinary Public Health
Linda Smith	Regional Veterinary Investigation and Surveillance Lead
Paul Duff	Leader of Diseases of Wildlife Scheme (May 2012 ->)

FOOD STANDARDS AGENCY (FSA)

Food Hygiene and Microbiology:

Geraldine Hoad	Head, Food Production Branch
Sophie Rollinson	Senior Scientific Officer, Food Production Branch

DEPARTMENT OF HEALTH (DH)

Infectious Diseases and Blood Policy Department:

Maggie Tomlinson	Portfolio Manager Emerging Infections and Zoonoses (->March 2012)
Maree Barnett	Head of Emerging Infections Policy (November 2012->)

HEALTH PROTECTION SCOTLAND (HPS)

Dominic Mellor	Veterinary Consultant

THE SCOTTISH GOVERNMENT

Agriculture, Food and Rural Communities Directorate, Animal Health and Welfare Division:

Sheila Voas	Acting Chief Veterinary Officer (->October 2012)
	Chief Veterinary Officer (October 2012->)

NATIONAL EXPERT PANEL ON NEW AND EMERGING INFECTIONS (NEPNEI)

Andrew Hall	Chair of NEPNEI

Introduction

The Human Animal Infections and Risk Surveillance (HAIRS) Group was established in 2004, and is a Health Protection Agency (HPA), Department for Environment, Food and Rural Affairs (Defra), Animal Health and Veterinary Laboratories Agency (AHVLA) and Department of Health horizon scanning group chaired by the HPA's Department of Gastrointestinal, Emerging and Zoonotic Infections (GEZI) at HPA Colindale.

The Chair of the National Expert Panel on New and Emerging Infections (NEPNEI) and representatives from Public Health Wales (PH Wales), the Food Standards Agency (FSA), Health Protection Scotland (HPS), the Scottish Government, the Welsh Government, the Department of Agriculture and Rural Development (DARD) Northern Ireland and the Public Health Agency Northern Ireland are also members.

The HAIRS group's activities cover England, Wales, Scotland and Northern Ireland. The group meets monthly and acts as a forum to identify and assess infections with potential for interspecies transfer (particularly zoonotic infections). This report summarises the work of the HAIRS group during 2011 and 2012.

The work of the group prior to 2011/2012 is summarised in previous reports, available at:

www.hpa.org.uk/Topics/InfectiousDiseases/InfectionsAZ/EmergingInfections/HAIRS/

Terms of Reference

The terms of reference of the HAIRS group are:

1. Hazard identification

To identify and review zoonotic or potentially zoonotic/interspecies infectious incidents which may pose a change in risk to animal or human health, whether these are acute clusters, outbreaks or increasing trends in reports of known or new infections or syndromes. If the incident discussed falls within the remit of another group, the HAIRS group will ensure that the relevant group is aware and considering the event. These incidents are identified using a variety of sources and can be within the UK or international.

2. Risk assessment

If an infectious incident or trend has been identified, the group discusses whether there might be a risk of interspecies transfer that could pose a threat to animal or human public health. There are various levels of assessment and actions, as outlined in Figure 1.

If a member of the group considers an incident to be of urgent public health significance, the HAIRS group will be convened as rapidly as possible to discuss the implications of the event and ensure all the relevant agencies are informed. Members

of HAIRS will also act as a focus through which the concerns of these agencies/groups can be considered.

Risk assessments are completed using the expertise within the group or their contact networks. The group may recommend that an expert group is convened to consider significant threats or events. All incidents discussed at HAIRS meetings are recorded in the hazard identification log.

3. Risk management

Depending on the outcome of the risk assessment process, the HAIRS group may act as risk managers, or refer issues to other groups for risk management action.

For issues assessed as low risk, or where direct action is not warranted, the group may sign off or risk manage the incident, or continue to monitor the situation and reassess the risk at appropriate intervals.

For incidents assessed as being of potential threat to public health, the relevant agencies and groups will be alerted to the situation and the need for risk management action. Members of the group will act as points of contact for the agencies and departments responsible for risk management. The HAIRS group will not then directly act as risk managers, but may contribute advice and expertise to the risk management process.

4. Risk communication

The group will be responsible for preparing and communicating the conclusions and recommendations of any expert qualitative risk assessment process. This information will be communicated to members of the National Expert Panel on New and Emerging Infections (NEPNEI), and the UK Zoonoses, Animal Diseases and Infections group (UKZADI) through circulation of the HAIRS group minutes. Abridged versions of risk assessments are also published in the public domain in the HAIRS Annual Reports. The group also contributes to the monthly “Infectious Disease Surveillance and Monitoring System for Animal and Human Health: Summary of notable events/incidents of public health significance” and the quarterly Zoonoses Network Newsletter which are published on the HPA website and distributed to subscribers.

Horizon scanning and hazard identification

The HAIRS group carries out horizon scanning to identify emerging and potentially zoonotic infections that may pose a threat to UK public health. This is carried out by systematic examination of formal and informal reports on infectious incidents in animal and human populations globally. A wide range of information sources are scanned, including informal news reports and bulletins, early warning communications, surveillance data and peer-reviewed scientific literature. The secretariat and members of the group identify potential hazards, such as new or unusual syndromes or infections in animals, or increases in endemic disease, and these are then brought to

the group for discussion and assessment. The multidisciplinary nature of the HAIRS group enables objective and scientific assessment of potential threats.

If infections are thought to be of potential significance, they are included in the "Infectious Disease Surveillance and Monitoring System for Animal and Human Health: Summary of notable events/incidents of public health significance" which is produced monthly. This output is circulated to a range of colleagues working in human and animal health, as well as the members of the NEPNEI (which include the chairs of relevant infection-related advisory committees, representatives from across the UK and the Cabinet Office), Department of Health, key personnel and others working in related areas in the HPA, Defra and AHVLA. The summary is also placed on the HPA website.

Risk assessment procedures

There has been a steady evolution and development of the processes of risk assessment employed by the HAIRS group since 2004. There are currently three main risk assessment systems used, the choice of which is dependent on the nature of the incident under discussion and the extent of the information available. A recent development in the risk assessment process is the incorporation of the explicit depiction of the evidence underpinning the risk assessment decision which allows for the incorporation of a measure of confidence in the risk estimations. A document outlining in greater detail the risk assessment processes undertaken by HAIRS is available on the HPA HAIRS webpages. The three main processes employed by the HAIRS group are:

- **Zoonotic potential algorithm**

  In situations where the zoonotic potential of a new or emerging infection in animals is unknown, the group assesses this using a systematic decision tree approach. This considers the key stages in the transmission of zoonotic infections and is used to categorise the zoonotic potential into one of four levels.

- **Emerging infections risk assessment tool**

  This assesses the risk to the UK population from a new or emerging infection arising anywhere in the world. The process deals with the *probability* that a new or emerging infection (either human or zoonotic) will infect the UK population, and the *impact* this will have on human health.

- **Risk Statements**

  On occasions it is more appropriate to issue a narrative risk statement or summary, which outlines and describes the identified threats and communicates the risk.

Additional information:

www.hpa.org.uk/Topics/InfectiousDiseases/InfectionsAZ/EmergingInfections/HAIRS/

HAIRS risk assessment process: http://www.hpa.org.uk/webc/HPAwebFile/HPAweb_C/1317138186848

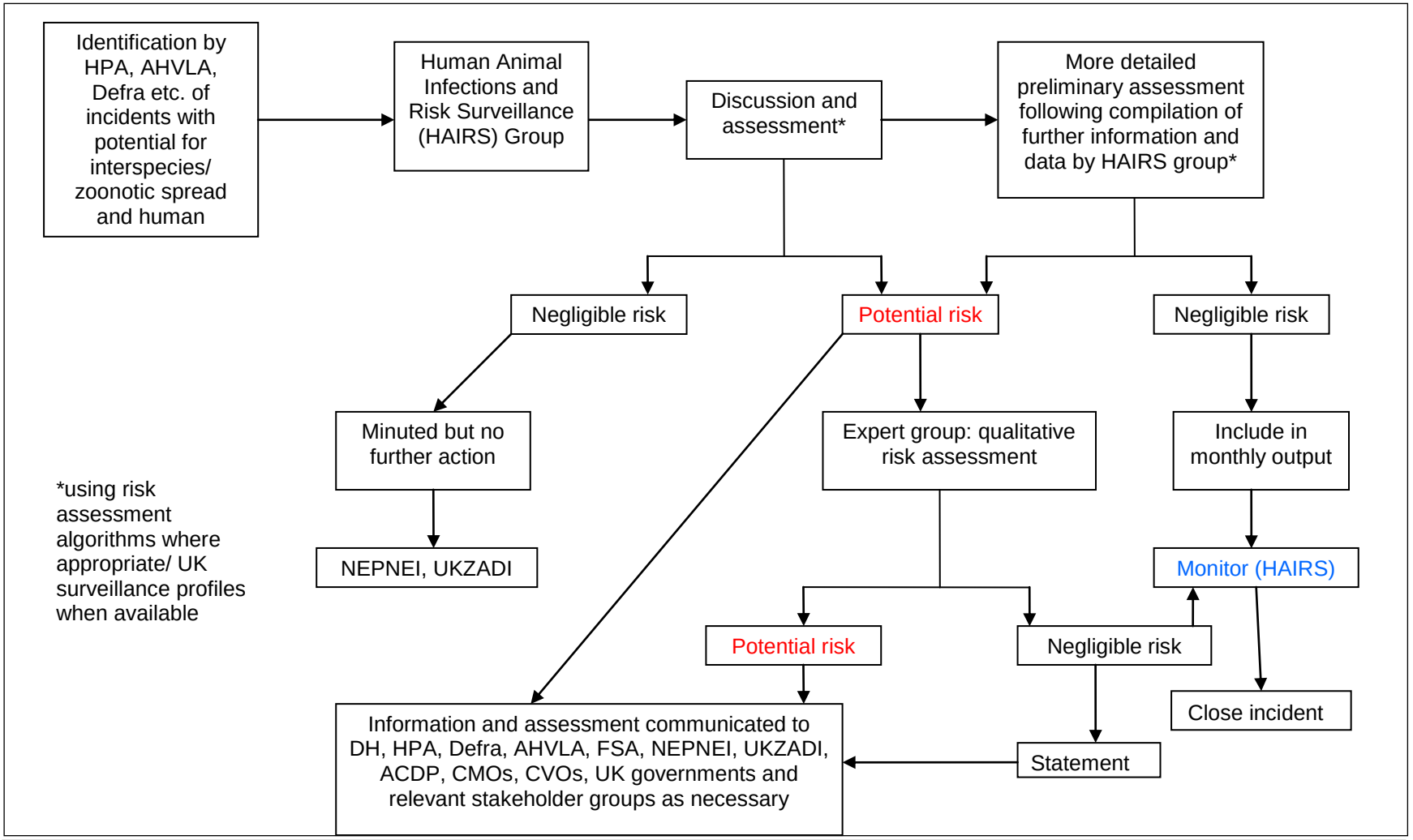
European Centre for Disease Prevention and Control. Operational guidance on rapid risk assessment methodology. Stockholm: ECDC; 2011.

http://www.ecdc.europa.eu/en/publications/Publications/1108_TED_Risk_Assessment_Methodology_Guidance.pdf

Palmer S, Brown D, Morgan D. Early qualitative risk assessment of the emerging zoonotic potential of animal diseases *Br Med J* 2005; **331**:1256-60.

Morgan D, Kirkbride H, Hewitt K, Said B, Walsh AL. Assessing the risk from emerging infections. *Epidemiol Infect* 2009; **137 (11):** 1521-1530

Figure 1 Process of risk assessment by the HAIRS group



ACDP=Advisory Committee on Dangerous Pathogens, AHVLA=Animal Health and Veterinary Laboratories Agency CMO=Chief Medical Officer, CVO=Chief Veterinary Officer, Defra=Department for Environment, Food and Rural Affairs, DH=Department of Health, FSA=Food Standards Agency, HAIRS=Human Animal Infections and Risk Surveillance Group, HPA=Health Protection Agency, NEPNEI=National Expert Panel on New and Emerging Infections, UKZADI=United Kingdom Zoonoses, Animal Diseases and Infections group.

Selected issues discussed by the HAIRS group during 2011/2012

Section A: Key incidents and issues discussed during 2011/2012

Garra rufa fish pedicures

Incident:

In 2010 and 2011, an increasing number of establishments offering fish pedicures opened in the UK. A survey among environmental health practitioners conducted in early 2011 identified 279 fish spas in 119 local authorities across the UK, with further spas planned. This number was likely to under-represent the vast quantities of fish spas in the UK as only one third of all local authorities were accounted for in this survey. Fish pedicures involve the submersion of customers' feet in a tank containing *Garra rufa* fish, a small toothless species of freshwater carp, which nibble off dead and hardened skin. In addition to the cosmetic benefits of a fish pedicure, some establishments also claimed such treatment could have a beneficial effect on some medical conditions, for example eczema, psoriasis and diabetes. In January 2011 the HPA received numerous enquiries as to the possible public health risks of using *Garra rufa* fish in foot spas.

Process:

A multidisciplinary working group for *Garra rufa* fish spas chaired by the HPA and Health Protection Scotland in collaboration with other agencies was set up to establish the public health significance of fish pedicures and produce a guidance document on their use in the UK. Working with members of the HAIRS group, three areas in particular were considered in the risk assessment:

i) Does the water in the fish tanks pose a risk?
ii) Do the *Garra rufa* fish carry zoonotic disease? and
iii) Could the process of a fish pedicure lead to a risk to public health?

Additional questions were raised regarding the welfare of the fish used in the spa treatments, including whether the fish were starved to encourage feeding on human skin.

Outcome:

In October 2011 a document outlining guidance on the management of the public health risks associated with *Garra rufa* fish pedicures was published by the HPA on behalf of the working group, aimed at environmental health and public health

practitioners in the UK. The public health risk of fish pedicures was deemed to be very low. Unlike the situation in other countries, there are no legal grounds in the UK to ban fish spas. Certain groups of clients such as those who are immunocompromised or have underlying medical conditions including diabetes and psoriasis, are likely to be at increased risk of infection and fish pedicures are not recommended for such individuals. Operators of fish spas are also recommended to avoid actively promoting treatment for these at-risk groups due to the lack of clear evidence of the therapeutic benefit from fish pedicures. While outside the remit of the risk management document, information sources regarding fish welfare guidance and legislation were provided within the guidelines. Considerable media attention was generated from this report. The popularity of fish pedicures diminished in 2012.

Additional information:

HPA. Guidance on the management of the public health risks from fish pedicures. London, October 2011. http://www.hpa.org.uk/webc/HPAwebFile/HPAweb_C/1317131045549

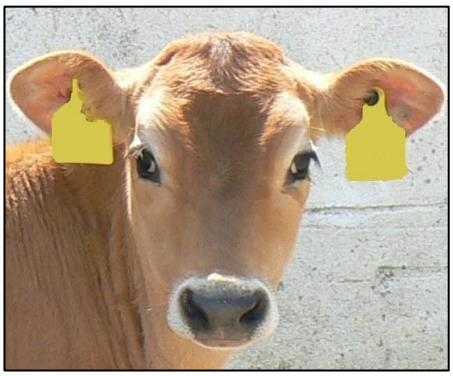
Schmallenberg virus

Incident:

A novel syndrome associated with disease in animals and since named Schmallenberg virus (SBV) was identified by the Friedrich-Loeffler Institute in Germany in November 2011. This followed the investigation of fever, poor general condition, anorexia and reduced milk yield in dairy cows in western Germany during the summer of 2011. Similar outbreaks of disease were reported from the Netherlands, where cases also had severe diarrhoea. In both countries, clinical signs disappeared after a few days and the animals appeared to recover unaffected. However, in early December, a high number of congenital malformations such as twisted neck, abnormal curvature of the spine, and limb contractures occurred in newborn lambs. Many were stillborn. Similarly malformed lambs were reported in Germany and Belgium, and deformed newborn calves were also reported. SBV was identified in many of the affected animals.

In the UK, several measures were put in place in August 2011 to detect the occurrence of suspect cases. Enhanced surveillance for abortions/stillbirths and malformations in cattle, sheep and goats started in December. Farmers and farm vets were informed and encouraged to report and submit affected animals for investigation.

Process:



The HAIRS group closely monitored developments and SBV was discussed at the monthly meetings in early December and January. The main discussion was whether SBV could be a zoonosis. The virus had been identified as being an orthobunyavirus, some of which can cause human disease, including some in the Simbu serogroup to which SBV belongs. However, the most closely related viruses in this group (Shamonda, Aino and Akabane) produce a similar clinical picture in livestock but have not been shown to cause disease in humans. It was therefore considered unlikely that Schmallenberg virus was zoonotic, but human infection could not be excluded. This opinion was shared by public health colleagues across Europe, with whom members of the HAIRS group were in frequent communication.

On 23rd January 2012, AHVLA identified the first four affected farms in Norfolk, Suffolk, and East Sussex. Because of the uncertainties over the zoonotic potential of SBV, the HPA worked closely with the AHVLA, and on 27th January 2012 follow-up of workers with an occupational exposure to the virus was started.

Outcome:

Joint briefings were produced from December, and although many uncertainties and gaps in knowledge remained, the group issued and circulated a risk statement in early February 2012 while undertaking a more detailed risk assessment. This was put on the newly established SBV section on the HPA website with links to and from the Defra and AHVLA websites.

By May 2012, the lack of symptomatic illness in exposed people in England and other countries in Europe, and the failure of serological surveys to demonstrate any evidence of infection in persons with occupational exposure in Germany (Ducomble *et al.,* 2012) and the Netherlands (Reusken *et al.,* 2012), led the initial risk assessment to be revised. The most recent HAIRS risk assessment states that it is very unlikely that SBV poses a zoonotic risk to humans. On this basis, the HAIRS group determined that no further action was necessary at this stage. However, the situation continues to be monitored and the risk assessment will be revisited in the event that any additional information on the zoonotic risk of SBV comes to light.

Additional information:

HPA Schmallenberg virus webpage: http://www.hpa.org.uk/Topics/InfectiousDiseases/InfectionsAZ/EmergingInfections/SchmallenbergVirus/

Defra Schmallenberg virus webpage: http://www.defra.gov.uk/animal-diseases/a-z/schmallenberg-virus/

Feature article 1. Zoonoses Report UK 2011. http://www.defra.gov.uk/publications/files/pb13851-zoonoses-2011.pdf

RKI and ECDC risk assessment: http://www.ecdc.europa.eu/en/publications/Publications/TER-Joint-ECDC-RIVM-RKI-Rapid-Risk-Assessment-Schmallenberg-virus-May-2012.pdf

Ducomble T, Wilking H, Stark K *et al*. Lack of evidence for Schmallenberg virus infection in highly exposed persons, Germany, 2012. *Emerg Infect Dis*. 2012. 18(8):1333-5. doi: 10.3201/eid1808.120533

Reusken C, van den Wijngaard C, van Beek P, *et al*. Lack of evidence for zoonotic transmission of Schmallenberg virus. *Emerg Infect Dis*. 2012.18(11):1746-54. doi: 10.3201/eid1811.120650.

Animals at the Opening Ceremony of the London Summer Olympics 2012

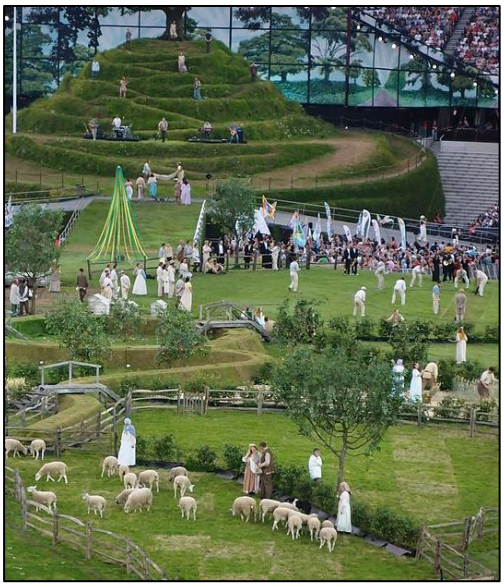


Figure 2 Sheep and actors in a pastoral scene at the 2012 Summer Olympics opening ceremony (Image courtesy of Wikimedia Commons).

Issue:

For the Summer Olympics held in London in 2012, the opening ceremony included a pastoral scene to represent the British countryside. This scene included the use of cattle, sheep, goats, horses, dogs and poultry. In July 2012, a number of members of the HAIRS group were approached to advise on the potential risk to public health posed by the use of these animals in the ceremony.

Process:

A risk statement was produced by the HAIRS group using the limited publicly available information in conjunction with information made available to Defra and AHVLA. This included formal risk assessments supplied in confidence by London 2012 Ceremonies Ltd to Defra, which mainly discussed animal welfare and staff practices. Further information and points of clarification were obtained during a site visit by Defra and AHVLA colleagues on 6th July 2012.

Outcome:

A document created by the company responsible for the animals used in the opening ceremony provided reassurance that risks to animal handlers had been considered and that measures had been put in place to control the risks. In addition, a risk statement was prepared by the HAIRS group with recommendations to reduce potential disease risk for any persons coming into contact with the animals, their environment and their waste products. No disease incidents associated with the animals used during the opening ceremony were reported.

Defra/AHVLA notifications on bovine tuberculosis reactor herds

Issue:

During 2012, AHVLA updated their IT system. One function of the new system is to automatically generate reports about confirmed bovine tuberculosis (bTB) reactor herds for their staff and other users such as consultants in communicable disease control (CCDCs). The HAIRS group was asked to consider the frequency and content of the proposed reports for the local health protection teams.

Process:

Preliminary investigations revealed that practices on receipt of a confirmed reactor herd notification varied between the constituent countries of the UK. Practices also varied considerably within the HPA, although many did follow the NHS National Institute for Health and Clinical Excellence (NICE) clinical guidelines on tuberculosis.

Outcome

Although the public health risk was likely to be low, the HAIRS group felt that public health teams should continue to receive routine notifications about confirmed bTB in herds in a timely manner in order to assess whether public health actions were necessary. Relevant data needed to inform the risk assessment were also required. Two members of HAIRS became involved in the AHVLA project work to ensure public health concerns were considered.

The group also agreed that it would be good practice if standard guidelines were followed within the HPA, and the same principles were followed across the UK. This agreed consistent approach would include the criteria necessary for notifying health protection teams and expected actions based on these criteria. This work was taken forward into 2013.

Further information:

NICE. Clinical diagnosis and management of tuberculosis, and measures for its prevention and control. Clinical guidelines, CG117, Issued March 2011. http://guidance.nice.org.uk/CG117

Hantaviruses in the UK

Background:

Figure 3 A field vole (image courtesy of Wikimedia Commons)

Hantaviruses are rodent-borne, zoonotic, RNA viruses belonging to the Bunyaviridae family. Infection in humans occurs through the inhalation of infected rodent excreta and fluids, i.e. urine, faeces and saliva. Each virus is specific to its rodent host species. The severity and clinical progression following infection with hantaviruses are largely dependent on the causative virus. In humans, two predominant clinical syndromes are recognised: haemorrhagic fever with renal syndrome (HFRS) in Europe and Asia, and hantavirus pulmonary syndrome in the Americas.

Although hantaviruses are considered to be endemic in the UK rodent population, virological evidence did not exist to support this. Human hantavirus cases are rarely reported and those that are usually have a relevant travel history. The majority of hantavirus infections in humans are likely to be asymptomatic or present with mild and non-specific symptoms. In the absence of travel, hantavirus is rarely thought of as a diagnosis and is therefore likely to be under-reported. The virus serotypes present and their resulting clinical presentation remain largely uncharacterised.

An initial assessment of the risk hantaviruses present to the UK population was carried out by the HAIRS group in 2006 and characterised the probability as moderate and the impact on human health as low. The risk assessment was repeated in 2007 as a result of further information becoming available regarding the transmission cycle of hantavirus. The risk of a significant number of cases in the UK population as a whole was considered to be very low to low.

Incident:

In 2012, two confirmed cases of hantavirus were reported in the UK in people without a recent travel history. Although serological surveys have suggested that hantaviruses may be present in the human population in the UK, and there have been rare isolated cases of HFRS, the viruses responsible have been uncharacterised. Hantavirus was assumed to be present in the UK rodent population, but in 2012, a Seoul hantavirus was sequenced from a wild brown rat in northern England, representing the first UK strain of hantavirus detected in this species (Jameson *et al*., 2013). Also in 2012 a

novel hantavirus, Tatenale virus, was detected in a field vole in England (Pounder *et al*., 2013). However, the public health significance of these finding has yet to be elucidated.

Process:

At the time of the detection of hantaviruses in wild rodent species in the UK, the HAIRS group discussed the potential risk to public health of these findings. In November 2012, the group revised the previous risk assessment in light of the new virology data that had become available.

Outcome:

The revised risk assessment determined hantavirus to be a low risk to the health of the UK population, while its impact was assessed as low to moderate. The quality of the evidence underpinning the assessment was good. Further work is ongoing in UK rodent populations. The group will revisit and revise their assessment as appropriate.

Additional Information:

ECDC Hantavirus: http://www.ecdc.europa.eu/en/healthtopics/hantavirus/Pages/index.aspx

HPA Hantavirus webpage: http://www.hpa.org.uk/Topics/InfectiousDiseases/InfectionsAZ/Hantaviruses/

Jameson LJ, Logue CH, Atkinson B, Baker N, Galbraith SE, Carroll MW, Brooks T, Hewson R. The continued emergence of hantaviruses: isolation of a Seoul virus implicated in human disease, United Kingdom, October 2012.(2013) *Euro Surveill*.,18(1)

Pounder KC, Begon M, Sironen T, Henttonen H, Watts PC, Voutilainen L, Vapalahti O, Klempa B, Fook AR, McElhinney LM. Novel hantavirus in field vole, United Kingdom. (2013) Emerg Infect Dis 19(4). Ahead of print.

Section B: Risk assessments carried out by HAIRS during 2011/2012

Usutu virus

Background:

Usutu virus (USUV) is a mosquito-borne virus of the family *Flaviviridae* belonging to the Japanese encephalitis serocomplex, which contains important human pathogens such as Japanese encephalitis virus, Dengue virus and West Nile virus. First isolated from a mosquito (*Culex neavei*) in 1959 in South Africa, USUV emerged in 2001 in Austria causing deaths in Eurasian blackbirds, great grey owls and barn swallows (Weissenbock *et al*., 2002). Since then, circulating virus has been detected in Hungary, Switzerland, Spain, Italy and Germany. *Culex pipiens* appears to be the most common vector for USUV in Europe, although USUV-positive *Aedes albopictus* and *Culex perexiguus* have been found in Italy (Calzolari *et al*., 2012) and Spain (Vazquez *et al*., 2011) respectively. Very few instances of USUV infection in humans have been recorded. The majority of reported human infections have been associated with underlying disorders or asymptomatic carriage.

Figure 4 Common blackbird (image courtesy of Wikipedia Commons)

Incident:

In 2011 and 2012, a large number of deaths among wild and captive birds from USUV were reported in southwest Germany, depicting the spread of USUV in Europe.

Risk assessment process:

A risk assessment was carried out by the HAIRS group in October 2012 in collaboration with experts from AHVLA to determine the risk to the UK population of this emerging infection.

Risk assessment outcome:

Sufficient host and vector populations for USUV establishment and spread are present in the UK. However, studies looking for the presence of arbovirus infections in birds did not find convincing evidence of USUV (Buckley *et al*., 2003; Buckley *et al*., 2006; ProMED, 2004) and no human cases have been reported in the UK. While insufficient evidence was available to confidently determine the public health risk USUV presents to the UK population, it was estimated to be very low to low. The HAIRS group will continue to monitor the situation and will revise the risk assessment if further evidence becomes available.

Additional Information:

Buckley, A., Dawson, A., & Gould, E. A. Detection of seroconversion to West Nile virus, Usutu virus and Sindbis virus in UK sentinel chickens, Virol.J.,2006, 3, p. 71.

Buckley, A., Dawson, A., Moss, S. R., Hinsley, S. A., Bellamy, P. E., & Gould, E. A. Serological evidence of West Nile virus, Usutu virus and Sindbis virus infection of birds in the UK, J.Gen.Virol., 2003,84(Pt 10), pp. 2807-2817.

Calzolari, M., Gaibani, P., Bellini, R., Defilippo, F., Pierro, A., Albieri, A., Maioli, G., Luppi, A., Rossini, G., Balzani, A., Tamba, M., Galletti, G., Gelati, A., Carrieri, M., Poglayen, G., Cavrini, F., Natalini, S., Dottori, M., Sambri, V., Angelini, P., & Bonilauri, P. Mosquito, bird and human surveillance of West Nile and Usutu viruses in Emilia-Romagna Region (Italy) in 2010, PLoS.One., 2012, 7(5), p. e38058.

ProMED (2004) Arbovirus antibodies, Birds - UK (02), Archive number: 20040402.0904.

Vazquez, A., Ruiz, S., Herrero, L., Moreno, J., Molero, F., Magallanes, A., Sanchez-Seco, M. P., Figuerola, J., & Tenorio, A. West Nile and Usutu viruses in mosquitoes in Spain, 2008-2009, Am.J.Trop.Med.Hyg.,2011, 85(1), pp. 178-181.

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Ljungan virus (update)

Background:

Figure 5 Bank vole (image courtesy of Wikipedia Commons)

Ljungan virus (LV) is a picornavirus, first isolated in 1998 from bank voles in Sweden, and subsequently reported in a number of rodent species in Europe and the Americas. Though the zoonotic potential of this virus has yet to be proven, various studies by a research group in Sweden potentially link LV to a number of human diseases including intrauterine foetal deaths (Niklasson *et al.* 2007), type-1 diabetes, Guillain-Barré Syndrome, myocarditis (Hauffe *et al.* 2008) and Sudden Unexplained Infant Death (SUID) Syndrome (Niklasson *et al.,* 2009). The virus was initially referred as an item for consideration by the HAIRS group by a member of the AHVLA Wildlife Group in November 2008 and has subsequently been frequently discussed as more information on the virus became available.

In 2008 the HAIRS group carried out an initial risk assessment which concluded that the preliminary studies had methodological shortcomings and did not constitute evidence of human zoonotic infection. However, the group felt that further work was warranted in order to investigate the virus as a potential zoonosis and decided that the risk assessment should be regularly reviewed to reflect this. The risk assessment was reviewed in 2009 in response to the potential link of LV to SUID syndrome, but this

additional information did not affect the outcome of the previously completed risk assessment which classified LV as a potential zoonosis (level 2).

Incident:

In 2012 the risk assessment was reviewed by the HAIRS group based on a HPA study which tested representative human sera collected in the UK for evidence of LV antibody. Preliminary results suggest that a Ljungan-like virus is circulating in humans in the UK population and exposure is thought to occur at an early age. However, comparison between sera from the general population and farm workers suggest that infection may be more common in farm workers. This work is ongoing.

Process:

The LV risk assessment was updated by the HAIRS group in October 2012 to assess whether this additional information would change the previously determined zoonotic potential of the organism.

Risk assessment outcome:

This update of the LV situation in the UK did not affect the outcome of previous risk assessments, which remained at Level 2 (potential zoonosis: Serological evidence of infection or human exposure has occurred, but surveillance is not sufficiently reliable). Publication of further work is expected regarding the prevalence of infection in rodents in the UK. The HAIRS group will continue to monitor the situation and review its conclusions in light of the findings of any further research.

Additional Information:

Hauffe HC, Niklasson B, Olssoon T, Bianchi A, Rizzoli A and Klitz W. Ljungan virus (a possible cause of several human health conditions) found in Bank Voles (Myodes glareolus) and Yellow-necked Mice (Apodemus flavicollis) for the first time in Northern Italy. EWDA Conference 2-5 October 2008.

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West Nile virus (update)

Background:

Figure 6 *Culex modestus* (Image courtesy of the Institute of Animal Health (now The Pirbright Institute))

West Nile virus (WNV), a Flavivirus, is a viral infection of birds transmitted by mosquitoes, although humans and other mammals can also be infected. The virus was first isolated in 1937 from a woman with fever in the West Nile district of Uganda and it was later recognised as a cause of meningo-encephalitis. In the last decade WNV has become a major public health issue in North America. In Europe, sporadic cases and outbreaks of WNV in humans and horses have been observed since the 1960's. In 2011, 130 probable and confirmed human cases were recorded in the EU (Greece, Italy, Romania and Hungary) and 207 in neighbouring countries. Since WNV surveillance began in England and Wales in 2002, no indigenous cases of WNV have been reported. Only two confirmed cases of infection in humans have been recorded in UK residents, both acquired through travel to Canada. The initial assessment of the risk WNV presents to the UK population was carried out in 2008. Since then, the risk assessment has been revised in line with the evolving epidemiological situation in Europe.

Incident:

In 2012, the risk assessment was again revised to consider the continued outbreaks in Europe and neighbouring countries, as well as the discovery of *Culex modestus* in southern England for the first time since 1944. Since 2010, two established populations of *Cx. modestus* have been discovered in England; in the North Kent marshes (Golding *et al*., 2012) and in the Cambridgeshire fens (Medlock & Vaux, 2012).

Risk assessment outcome:

The presence of *Cx. modestus* in the UK may suggest that a higher WNV risk to humans and horses is present in these locations. However, further research is necessary to evaluate the spatial disparity in risk levels in the UK. This new information did not result in a change to the previously assessed risk of WNV which remained at very low to low and the impact on the UK population was again determined as low to moderate. The HAIRS group will continue to monitor the vector population situation, as well as host (bird and human) surveillance and will revise the current risk assessment as required.

Additional information:

ECDC West Nile virus webpage:
http://ecdc.europa.eu/en/healthtopics/west_nile_fever/Pages/index.aspx

HPA West Nile virus webpage:
http://www.hpa.org.uk/Topics/InfectiousDiseases/InfectionsAZ/WestNileVirus/

Defra: West Nile Virus: Potential Risk Factors and the likelihood for introduction into the United Kingdom:

http://www.defra.gov.uk/animal-diseases/files/qra-wnv-120501.pdf

Golding, N., Nunn, M. A., Medlock, J. M., Purse, B. V., Vaux, A. G., & Schafer, S. M. West Nile virus vector *Culex modestus* established in southern England, *Parasit.Vectors.*, 2012, **5**, pp. 32-37.

Medlock, J. M. & Vaux, A. G. C. Distribution of West Nile virus vector, *Culex modestus*, in England, *Veterinary Record*, 2012, **171**(11), p. 278.

Section C: Update on issues discussed previously

Mycobacterium bovis in non-bovine animals

Figure 7 Alpaca (image courtesy of Wikimedia Commons)

Mycobacterium bovis is a member of the *Mycobacterium tuberculosis* complex which has a large host range and global distribution. Specifically adapted to cattle, *M. bovis* has been isolated from a number of wild and domestic animal species in the UK. *M. bovis* infection in non-bovine animals has been occasionally reported to the HAIRS group for consideration since 2005. In 2011/2012 AHVLA and Defra reported a number of *M. bovis* incidents involving non-bovine animals including a case of disseminated infection in an 18 month old alpaca from Truro, a large outbreak in an alpaca herd in Sussex, the death of a grey seal pup from necrotising cellulitis caused by an *M. bovis* infection in Cornwall, infection in primates in a walk-through enclosure in Staffordshire and infection in a camelid owner.

The issue of *M. bovis* in non-bovine animals was forwarded to UKZADI to ensure that human and veterinary public health members were aware of the current issues and to encourage collaboration and sharing of monitoring resources in human and animal populations. The HAIRS group agreed that novel circumstances of *M. bovis* infection should continue to be monitored by the group.

Additional information:

Defra. Incidents of confirmed M. bovis infection in domestic and companion animals and wild deer in GB from 1997 http://www.defra.gov.uk/statistics/files/defra-stats-foodfarm-landuselivestock-tb-other-otherspecies-121102.xls Accessed 03/01/2013

Hydatid disease (*Echinococcus granulosus*) in Wales

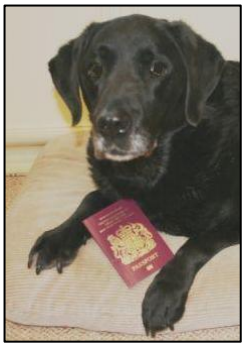
The epidemiology of hydatid disease in animals in Wales has been discussed by the HAIRS group since 2009. In recent years an educational campaign has been the main public health intervention used in Wales and includes educating dog owners on the need to worm dogs regularly. Indigenous human cases of echinococcosis are very rare in the UK, and are generally restricted to Wales or the Welsh border areas. However, there is often a long lag period between exposure and disease presentation, meaning the public health implications of the current epidemiology in animals may be difficult to interpret.

In September 2012, a preliminary survey of *Echinococcus granulosus* detection at slaughterhouse post-mortem inspection was presented to the HAIRS group. The main aim of the study was to map out the geographical distribution of *E. granulosus* using a

small subsection of the UK cattle population acting as sentinel hosts to identify areas of higher risk for human infections. The study was undertaken because anecdotal evidence suggested that *E. granulosus* is more widespread in Wales and England than currently appreciated. The locations of infected cattle were mapped and revealed that cattle found to have hydatid cysts by FSA inspectors came from locations widely dispersed throughout Wales, England and to a lesser extent, Scotland.

The group agreed that while this study may indicate a risk of transmission of hydatidosis outside of the traditional areas, there is no evidence that the risk to the human population outside these areas has changed. Human cases remain very rare. However, the need to maintain awareness and support for controls, including appropriate dog anthelmintics and sheep carcase disposal, should be reinforced across the UK.

The Pet Travel Scheme



Since 2008 the HAIRS group has discussed the proposed harmonisation of the non-commercial movement of pets via the pet travel scheme (PETS) and considered the effect these changes would have on the health of the animal and human populations in the UK. Of particular concern was the proposed abolition of compulsory worming and tick treatments for imported pets. Being one of only four countries within the EU with *Echinococcus multilocularis* free status (the others being Finland, Republic of Ireland and Malta), the proposal to abolish worming treatments in pets prior to entry to the UK was considered to increase the risk of introducing *E. multilocularis* into the UK from negligible to low (Defra, 2010). In July 2011, the EU announced a derogation for the four Member States classified as *E. multilocularis* free, which stated that a dog must receive specific worming treatment between 24 hours and five days before entry into any of these countries. No derogation for tick treatment requirement was approved. This amendment to PETS was brought into force on 1st January 2012 in conjunction with the revised travel scheme. The effect of the abolishment of the requirement for tick treatment prior to entry will be monitored by the HAIRS group in light of the increased risk of importing live ticks infected with zoonotic threats such as tick-borne encephalitis virus, tularemia and Mediterranean spotted fever.

Additional information:

Defra, The change in likelihood of Echinococcus multilocularis (Alveolar Echinococcosis) introduction into the United Kingdom as a consequence of adopting harmonised Community rules for the non-commercial movements of pet animals (2010). http://www.defra.gov.uk/animal-diseases/files/qra-echinococcus-101101.pdf Accessed: 03/01/2013

Toxocara vitulorum in England and Wales

Figure 8 A European Bison (image courtesy of Wikimedia Commons)

Toxocara vitulorum is a common ascarid parasite of cattle, Asian water buffalo and zebu in tropical and subtropical regions of the world. Cases of *T. vitulorum* in animals are reported occasionally in Europe and North America, normally associated with imported animals. Sporadic cases of *T. vitulorum* in bison and cattle in the UK have been recorded since 2005 and individual cases in animals have been discussed by the HAIRS group since 2007. *T. vitulorum* is a possible (but unproven) cause of visceral larval migrans in humans, similar to other *Toxocara* species (e.g. *T. canis* and *T. mystax* (*T.cati*)).

The HAIRS group has continued to monitor the *T. vitulorum* situation in the UK via regular feedback from AHVLA representatives. In 2011/2012 five cases of *T. vitulorum* were recorded in England and Wales; four in suckler calves and one in a bison calf. While the prevalence of disease is not thought to have increased significantly in the last few years, the HAIRS group has determined that the potential risk *T. vitulorum* presents to the UK population should be assessed at this stage. This risk assessment will be completed in early 2013.

Section C: Other topics discussed by HAIRS

Throughout 2011/2012, HAIRS discussed a wide variety of other disease incidents. Many topics were raised at the group with the aim of ensuring good communication and exchange of information, whilst others required further action to be taken by the group. The following is an overview of some of the topics discussed and the actions taken.

Hepatitis E virus in England and Wales

In 2011 and 2012 the HAIRS group discussed the changing epidemiology of human cases of hepatitis E in England and Wales. Hepatitis E virus (HEV) is an enteric virus which causes an acute hepatic illness in humans. Contact with pigs and consumption of pig products have been reported as risk factors for some infections and outbreaks, however other food sources and risk factors have also been recognised. The majority of hepatitis E infections are sporadic and the source is not identified.

Traditionally HEV infections have been associated with travel to endemic areas in the developing world. However, indigenous infections with HEV have increasingly been recognised in developed countries. Reference laboratory confirmed hepatitis E cases have significantly increased in recent years in England and Wales, with 566 cases reported in 2012 and 456 in 2011. In contrast, 276 cases were reported in 2010, 175 cases in 2009 and 178 cases in 2008. An increase in indigenous cases accounts for this rise with 405 (72%) cases in 2012 and 253 (56%) cases in 2011 related to UK acquired infection, compared to an average of 47% in previous years. This increase in indigenous hepatitis E raised public health concerns and prompted a tranche of work including epidemiological investigations to determine risk factors for the acquisition of infection in England and Wales and pig studies to determine the prevalence of infection and characterisation of the circulating virus (in collaboration with Defra and AHVLA).

The HAIRS group will continue to monitor the epidemiology of HEV across the UK in 2013 and discuss the results of this serology study and other research as they become available.

Animal Health and Veterinary Laboratory Agency merger

In April 2011, AHVLA was created by a merger of Animal Health and the Veterinary Laboratories Agency. It was decided by the group that the current members from both organisations would continue their membership under the new organisation.

Infant botulism and terrapins

There have only ever been seven cases of infant botulism related to type E botulinum toxin reported, which included a case in the United Kingdom in 2010 and another case in Ireland in 2011. Both families kept terrapins, and sampling of the tank and opened terrapin food used by the family of the Irish case detected type E toxin. This was the first time that infant botulism has been associated with terrapins and terrapin food.

Chlamydiosis in garden birds

In September 2012 the HAIRS group discussed the recently published report on mortality in garden birds due to *Chlamydophila psittaci*. This issue had previously been discussed in 2009/2010 and guidance on hygiene measures regarding garden birds was placed on the HPA website. The group have offered their assistance in the drafting of an update to the garden bird hygiene guidance and will review how potential cases in humans are followed up.

Colvile, K.M., Lawson, B., Pocknell, A.M., Dagleish, M.P., John, S.K., Cunningham, A.A. Veterinary Record 2012;**171**(7) :177

Other national and international incidents

Many other incidents were discussed, for example, human cases of H3N2 influenza associated with close contact with swine in the USA; the detection of novel filoviruses in Schriebers bats in Spain and *Cryptosporidium baileyi* in grouse in England. Information on these and other incidents can be found in the monthly “Infectious Disease Surveillance and Monitoring System for Animal and Human Health: Summary of notable events/incidents of public health significance”.

HPA Emerging Infections Summary
http://www.hpa.org.uk/web/HPAweb&Page&HPAwebAutoListName/Page/1234254470752

Useful websites

Health Protection Agency

www.hpa.org.uk

Emerging Infections

http://www.hpa.org.uk/Topics/InfectiousDiseases/InfectionsAZ/EmergingInfections/

Zoonoses

http://www.hpa.org.uk/Topics/InfectiousDiseases/InfectionsAZ/Zoonoses/

National Expert Panel on New and Emerging Infections

www.dh.gov.uk/ab/nepnei/index.htm

Defra Disease Surveillance and Control

www.defra.gov.uk/food-farm/animals/diseases

Animal Health and Veterinary Laboratories Agency

http://www.defra.gov.uk/ahvla/

Non-statutory zoonoses reports

www.defra.gov.uk/vla/reports/rep_surv_zoonoses.htm

Food Standards Agency

www.food.gov.uk/

UK Zoonoses, Animal Diseases and Infections Group

http://archive.defra.gov.uk/foodfarm/farmanimal/diseases/atoz/zoonoses/ukzadi

UK Zoonoses Reports

http://www.defra.gov.uk/animal-diseases/zoonotic/

Glossary of abbreviations

ACDP	Advisory Committee on Dangerous Pathogens
AHVLA	Animal Health and Veterinary Laboratories Agency
bTB	Bovine tuberculosis
CCDCs	Consultants in Communicable Disease Control
CMO	Chief Medical Officer
CVO	Chief Veterinary Officer
DARD	Department of Agriculture and Rural Development, Northern Ireland
Defra	Department for Environment, Food and Rural Affairs
DH	Department of Health
ECDC	European Centre for Disease Control
FSA	Food Standards Agency
HAIRS	Human Animal Infections and Risk Surveillance
HEV	Hepatitis E virus
HFRS	Haemorrhagic fever with renal syndrome
HPA	Health Protection Agency
HPS	Health Protection Scotland
LV	Ljungan virus
NEPNEI	National Expert Panel on New and Emerging Infections
NICE	National Institute for Health and Clinical Excellence
PETS	Pet Travel Scheme
PH Wales	Public Health Wales
SBV	Schmallenberg virus
UKZADI	United Kingdom Zoonoses, Animal Diseases and Infections group
VLA	Veterinary Laboratories Agency
WNV	West Nile virus
USUV	Usutu virus

Health Protection Agency
2nd Floor
151 Buckingham Palace Road
London
SW1W 9SZ
www.hpa.org.uk

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February 2013