CURRENT NOTES


50/4901 Set up in 2004, the Human Animal Infections and Risk Surveillance (HAIRS) group is a multi-agency, multidisciplinary cross-government horizon scanning and risk assessment group covering England, Wales, Scotland and Northern Ireland. A recent report summarises the work done by the group between 2013 and 2015, and is a collaborative publication from members representing agencies across the four countries including Scottish Government and HPS.

Since 2004 HAIRS members have met on a monthly basis to discuss emerging issues affecting human and animal health in the UK and internationally. During this period, topics and incidents considered by the group have ranged from high profile outbreaks to rare disorders affecting restricted populations.

In the past three years (2013 to 2015), the group has continued to assess an extensive range of incidents and syndromes covering an array of infectious agents. The increasing recognition of the importance of vectors and vector-borne disease to human and animal health within the United Kingdom has become apparent over this period. From the first detections of *Borrelia miyamotoi* infected ticks in the UK to the continued expansion of *Culex modestus* mosquitoes, discussions on vector distribution and their associated pathogens are a regular feature of HAIRS meetings.

Incidents of undiagnosed morbidity and mortality and novel pathogens remain a priority for assessment by the HAIRS group. Following reports of canine mortality in the New Forest region of England in 2012, the group regularly reviewed emerging evidence for this disorder which remains of unknown aetiology. Squirrels have been the source of several discussions by the group in the last few years with the detection of a *Mycobacterium lepromatosis*-like pathogen in red squirrels in the UK and the report of human fatalities associated with infection with a novel bornavirus from non-native variegated squirrels in Germany.


**Incidence of TSEs in the EU**

50/4902 On 1 December, the European Food Safety Authority (EFSA) published its first EU summary report on the monitoring of transmissible spongiform encephalopathies (TSEs) in cattle, sheep and goats. Previously, these annual reports on TSEs were compiled by the European Commission.

TSEs are a group of diseases that affect the brain and nervous system of humans and animals. With the exception of Classical BSE, there is no scientific evidence that TSEs can be transmitted to humans.


A low number of BSE cases in cattle were detected in EU member states, none of which entered the food chain.

Some of the main findings of the report are:

- five cases of BSE in cattle have been reported in the EU, out of about 1.4 million animals tested;
- 641 cases of scrapie in sheep (out of 319,638 tested) and 1,052 in goats (out of 135,857 tested) have been reported in the EU.


**EFSA and ECHA to work on endocrine disruptor guidance**

50/4903 The European Food Safety Authority (EFSA) and the European Chemicals Agency (ECHA) are developing scientific guidance to enable identification of endocrine disruptors.

Earlier this year the European Commission proposed science-based criteria for identifying endocrine disruptors in the context of EU legislation on pesticides and biocides. Discussions with member states and experts are on-going and the criteria are expected to enter into force in 2017.

Once the criteria have entered into force, harmonised guidance will be needed to ensure they can be applied consistently and without delay by applicants and authorities in the EU.

EFSA and ECHA, supported by the Commission’s Joint Research Centre, will produce an outline of the guidance that will be published and will provide information on the drafting and endorsement processes.


**Molecular epidemiology: principles and practices**

50/4904 Molecular epidemiology has taken advantage of the emergence of technological advances collectively identified as ‘-omics’ (genomics, transcriptomics, proteomics, metabonomics) and their use in epidemiological studies has heralded a revolution in the design implementation, and interpretation of studies on disease causation. Not least, molecular epidemiology has brought together scientists of all disciplines to interact in very large, often
multi-national networks, fostering consortia that have the size and power to address diseases as a global challenge.

A major textbook recently published by the International Agency for Research on Cancer (IARC) addresses these developments and provides an extended, forward-looking vision of the principles, practice and impact of molecular epidemiology. Written and coordinated by leaders in the field, the book covers, in a systematic way, the major conceptual advances, with a strong emphasis on study design and on how to incorporate biomarker studies into epidemiology practice. While providing a cornerstone for specialists, the book is also a teaching and training manual for public health, biology and medical students at the undergraduate, graduate, and post-graduate levels. With its strong insistence on interdisciplinarity and its focus on translating complex concepts into information that can be shared across the borders of scientific disciplines, the book will be a door-opener for researchers in the many relevant fields.


**Smoking in cars with children**

50/4905 A new law which makes it illegal to smoke in a vehicle carrying anyone under 18 came into force on Monday, 5 December.

The legislation was passed unanimously by the Scottish Parliament last year. It was introduced to give extra protection for children and young people from the harm caused by second-hand smoke. Anyone caught breaking the law will be committing an offence carrying a fine of up to £1,000.

Second-hand smoke can cause serious conditions such as bronchitis, pneumonia and asthma, and children are more at risk than adults because they have smaller lungs and breathe more quickly. Latest research highlights that the toxic particles in second hand smoke can reach harmful concentrations within a minute of lighting a cigarette in a car. Studies have also shown the average toxic particle levels breathed in during a smoking car journey are more than 10 times higher than the average levels which can be found in the air.

A public information campaign has been running on TV and radio in the run-up to the ban, highlighting the harms of second-hand smoke and the penalties for breaking the new law.

The measure is part of the Scottish Government’s ambition to create a tobacco-free generation by 2034 - defined as a smoking rate of less than 5%. A target to reduce the proportion of children exposed to second-hand smoke in the home from 12% to 6% by 2020 has already been met. [Source: Scottish Government News Release, 5 December 2016. http://news.gov.scot/news/smoking-in-cars-with-children]
Establishment of the Scottish Schistosomiasis National Advice, Investigation and Liaison Group (SNAIL)

Background to Scottish context

Schistosomiasis is the most frequently reported parasitic disease in Scottish travellers. Infection occurs following contact with fresh water where free-swimming cercariae released from snail hosts penetrate human skin and migrate to reproduce in the liver portal system. The adult worms then migrate to the venules surrounding the bowel and bladder where they release eggs into the lumen of the bowel and bladder. Human infection can result in acute symptoms (Katayama fever); early signs of chronic infection such as haematuria, dysuria, abdominal pain; or genital lesions due to egg migration and granuloma formation; or remain asymptomatic. In endemic regions, untreated infection following years of exposure results in late complications with significant morbidity and mortality such as portal hypertension, bladder calcification and squamous cell carcinoma of the bladder. These complications are rarely seen in travellers who tend to have low burdens following isolated exposures. The long term sequelae of chronic low level infection in travellers are largely unknown.

Affordable air travel and continuing partnerships between Scotland and Malawi/Uganda ensure a steady flow of travellers, often school or university groups, to these regions to participate in water-based activities. This has led to an increase in exposure to the infective cercariae over recent years. The number of imported cases in Scotland is higher than the rest of Europe with an average of 155 cases since 2011. Due to the predominantly asymptomatic nature and the lack of awareness of the disease, it is likely that the number of cases is significantly underestimated (Data extracted from EC OSS).

FIGURE 1: Schistosoma infections reported in Scotland 2011-2015

![Bar chart showing number of new cases of schistosomiasis from 2011 to 2015 by year, gender, and unknown status.](chart)

Diagnosis and Management

Diagnostic testing for schistosomiasis relies largely on serology testing which provides a robust, reliable and cost-effective method to screen individuals with a history of exposure in high-risk areas. Blood samples should be taken 8-12 weeks post exposure as earlier serology can provide a false negative result. In addition to serological testing, microscopy can also be performed on stool and urine specimens, looking for ova and viability testing any ova present.

No standardised procedure currently exists in Scotland for the testing of patients for schistosomiasis. Variation exists between Scottish NHS boards regarding the timing of sampling, follow-up testing and treatment protocols, and no surveillance data is available. Limited data from Lothian cases where follow-up testing is performed more frequently than in other NHS boards has
highlighted the existence of late sero-conversion resulting in positive cases being mis-diagnosed as negative during preliminary screening. Without follow-up testing, these patients would not have received any treatment despite having the disease, and would therefore have been potentially at risk of associated detrimental long term conditions.

In addition, testing and treatment protocols vary depending on local infectious diseases (ID) clinic and there is an enthusiasm to standardise this.

The Liaison Group

The group has formed, chaired by Claire Alexander from the Scottish Parasite Diagnostic Reference Laboratory (SPDRL), and comprising representation from across the relevant fields (including ID, Public Health, Diagnostics, HPS, Parasitology, Primary Care).

During the inaugural meeting of the group in May 2016, aims/outputs and governance were discussed. In summary:

Aims of the Group

- to raise awareness of schistosomiasis, particularly amongst higher risk groups;
- to create a single national testing algorithm to ensure standardisation across Scotland;
- to draft clinical guidance on best practice in screening, diagnosis and management for use by clinicians (and others) across NHS Scotland;
- to explore the possibility of an enhanced surveillance system for schistosomiasis cases.

First Steps

As part of the work of this group, and to help inform clinical guidance development, a service evaluation audit is being progressed in a collaboration between Lothian Regional ID Unit, SPDRL and HPS. This involves assessing the benefit and timing of repeat schistosomiasis serology post treatment in returned travellers to establish a) if a reduction in antibody level is seen, and b) the time point at which repeat serology may show any meaningful reduction.

This information will help guide the follow-up of treated patients and may help identify those who require further treatment, for example if some antibody levels fall, and some do not, future evaluation could determine whether this correlates with treatment failure.

Cases will be identified and the data on antibody levels will be supplied to HPS (with patient identifiers removed) by SPDRL. The approximate date of treatment will be determined by examination of the clinical records by clinical staff in Lothian. The data will be stored, collated and analysed on computer (with no patient identifiable information) in HPS.

Governance and Reporting

Oversight of development of the algorithm and clinical guidance will fall under the newly formed ID Clinical Network. Regular updates on progress and outputs will be brought to the Scottish Immunisation Programme Implementation Group, part of the Scottish Health Protection Network, as appropriate and/or requested.

Further information on the work of the group can be obtained from the Travel and International Health Team at HPS (Tel: 0141 300 1137 or email: nss.hpstravelteam@nhs.net).