

Department for Environment, Food and Rural Affairs

SAC Subgroup on Exotic Diseases

Defra response to the key points from meeting on 26th November to consider HPAI H5N8

Defra and the Animal and Plant Health Agency (APHA) are grateful for the input from the Defra Science Advisory Council sub-group on exotic diseases (SAC-ED) and will discuss priorities for longer-term actions arising from SAC-ED's advice to the Defra Chief Scientific Adviser (CSA) and Chief Veterinary Officer (CVO), which will also inform our developing animal health and welfare Network Evidence Action Plan.

Immediate actions to take

Epidemiological scenarios

The ongoing low risk of HPAI introduction by wild birds and the wide range of possible future scenarios mean any work in this area must focus on understanding past outbreaks, and gathering relevant generic information with which to populate risk assessments or other models. The current close international engagement, both through research projects and the World Reference Laboratory, will be maintained; as will our close liaison with European colleagues, including sharing of information to understand the causes and commonalities between the outbreaks in the EU. The useful advice on seeking better understanding of the industry to enable earlier assessment of the probability of different risk pathways will be considered in the longer term.

Wild bird surveillance

APHA agree that the current level of surveillance has low sensitivity for a virus which has little impact on the health of the host. APHA is considering further work on the "year round low risk" and whether this is too broad an approach. A workshop will be held for expert ornithologists and epidemiologists to consider the wider issue of bird migration from Asia via the Arctic to Europe for LPAI and HPAI viruses. Surveillance sampling of live healthy birds carries a range of epidemiological, logistical and cost/benefit challenges but could also be considered at this workshop.

Genetic analysis

The genetic analyses are dynamic, ongoing and under continuous evaluation as new data become available. The EU/OIE/FAO¹ reference laboratory (EURL) for avian influenza at APHA-Weybridge is well placed and connected to pursue having privy access to data from other countries not in the public domain. It is applying state of the art phylogenetic analyses in real time and is using strong collaborative links within the academic sector in addressing these questions further.

Diagnostics

APHA-Weybridge is fully aware of and uses genetic tools for rapid virus subtyping but it also complies with EU standardised laboratory requirements. Since veterinary intervention and public health implications were not affected by this timeline, Next Generation Sequencing (NGS) was applied on the next working day as this was cost-beneficial.

The antigenic variation and drift in the virus over time continues to be closely monitored and the utility of new technologies for faster more robust serology are investigated.

APHA is open to bilateral collaboration with other specialists who can contribute novel insights to influenza virus biology and do already actively pursue through many collaborations.

Risk assessment

All our risk assessments are dynamic and will be updated as new information becomes available. Many of the assessments used in the epidemiological reports and to support licensing will benefit from additional characterisation of the virus and the reservoir hosts when available, but these assessments recognise the uncertainty which is inevitable when dealing with a new strain of virus.

SAC-ED recommendations regarding information of the industry structure and its role in the risk assessment process are responded to in the section on industry structure and governance later in this document.

Wider engagement and exchange of information

The OIE/FAO/EU reference laboratory at APHA-Weybridge is a core member of OFFLU (OIE/FAO global network of expertise on animal influenza) and is well connected in Asia having several collaborations; for example, directed at improved understanding of disease epidemiology, knowledge for control and better defining risk for UK /Europe. In particular, Professor Brown, head of the reference laboratory, visited South Korea in October 2014 to

¹ OIE – World organisation for animal health; FAO – food and agricultural organisation of the UN; EU – European Union

gain first-hand information, strengthen links, and develop bilateral collaborations including reagent exchange. In addition, APHA already interact closely with the FAO and EMPRES² teams (including previous work on a rapid risk assessment for H7N9 AI) and recognise the significant differences in our market chains, trade routes, transport, and production systems of the relative poultry sectors which make direct comparisons between Europe and Asia difficult.

APHA use their different affiliations to maintain global proactive horizon scanning and pursue scientific uncertainties to gain knowledge relevant to UK and Europe as a whole. APHA virologists and epidemiologists are well connected both within the UK, Europe and beyond. They are formal partners on numerous collaborative grants including with UK academia. Access to EU data is facilitated for Defra via many fora including competent authorities, the EU commission, international agencies and scientific networks. This has already been invaluable in providing an evidence base to inform UK control policy. The EU commissioned the European Food Safety Authority (EFSA) to conduct an urgent review of the events and future risk entitled H5N8 avian influenza: EFSA assesses entry routes into Europe. Both APHA and Defra contributed to this exercise. The report is published here: <http://www.efsa.europa.eu/en/press/news/141215.htm>

It would be useful to better understand the epidemiology of the Far East outbreaks and this might, to some extent, be achieved with additional formal links with the Far East beyond those existing through research and reference laboratory work. However, there are a limited number of non-research epidemiologists working for Defra on wider epidemiological analysis of HPAI and other exotic diseases and we feel effort is better spent on our within-Europe networks (as we do currently) where disease behaviour is much more likely to mimic the UK.

We will continue to review our evidence requirements for dealing with outbreaks of our top priority diseases and examine epidemiological research when epidemics of these diseases occur in other parts of the world. This research should report on the transmission rates, mechanisms of spread etc. (i.e. the parameters we need), and will enable us to have such data available if, or when the disease reaches our shores. Any future research will be reported within the context of the local industry structure as it is likely that there are substantial differences in husbandry, poultry density, and other factors that would compromise, for example, interpretation of the Far East outbreak in the context of seeking to better understand our own.

Resources

SAC-ED's concerns regarding challenges that may be faced should multiple outbreaks occur will be considered in the lessons learnt exercise. SAC-ED raised concerns about the 72 hour stand down period. Defra and APHA have created a framework to assess risk to allow the stand down time to be shortened when risk of disease is low.

² FAO Emergency Prevention System

Economics

SAC-ED's suggestion regarding economic analysis is responded to in the section on economic research.

Longer term actions to take

Economic research

SAC-ED suggestions to consider the use of rapid appraisal techniques and develop an improved understanding of the market response will be considered as part of the lessons learnt exercise. Future prioritisation of economic research and analysis will be undertaken as part of the Network Evidence Action Plan (NEAP). Professor Rob Fraser's paper on *Rapid Appraisal Technique for Assessing the Economic Impact of a Notifiable Disease Outbreak* was helpful in taking a pragmatic approach to the economic analysis of the outbreak.

Industry structure and governance

Defra will continue to review evidence on levels of compliance with biosecurity in the poultry industry and, if necessary, commission additional work to address evidence gaps. As part of development of the animal health and welfare NEAP, Defra will consider (subject to resourcing and prioritisation):

- a project to assess the risks inherent in the structure and governance of the industry and relationships between different organisations in the supply chain (this will combine desk-based and primary research) and impact on co-operation and compliance;
- a review of current data available on smallholder and hobby farmers and options for improving and maintaining data of this kind; and
- evaluation of incentives for outbreak reporting.

Contingency planning

SAC-ED's suggestion to explore scenarios for dealing with different types of outbreak will be considered in the lessons learnt exercise.