

## **Advisory Committee on Dangerous Pathogens**

### **Statement of the ad-hoc meeting of the ACDP Avian Influenza Working Group held on Monday 4<sup>th</sup> December 2006 at the Department of Health, Wellington House, SE1 8UG**

An ad hoc meeting of a Working Group of the Advisory Committee on Dangerous Pathogens (ACDP) was convened to review the recommendation made by the Committee in October 2005 that seasonal influenza vaccine should be routinely offered to poultry workers

As well as ACDP members, Professor Maria Zambon from the Health Protection Agency and Sir John Skehel were invited to give specialist advice. Mr Ian Brown from the Veterinary Laboratories Agency attended to give an update on the virology and current epidemiology of avian influenza (AI).

#### **Poultry workers**

Members reviewed the epidemiology of H5N1 outbreaks since October 2005 and the results of scientific research on avian influenza viruses with particular reference to human health. Members also considered evidence of the current risk of AI to the UK bird and poultry population. Members noted that there is no evidence that the H5N1 virus has developed the ability to pass easily from birds to people, nor has it developed the ability to pass readily from person to person. Limited evidence of person-to-person transmission in outbreaks of H5N1 in SE Asia suggests that where person to person transmission has occurred it has not been sustained.

Members noted that there was a continuing risk of introduction of avian influenza to the UK, and a low, but not negligible risk, of H5N1 being introduced into the UK through migratory wild birds. On the basis of these ongoing, though low risks, and the potential for the emergence of a new influenza strain as a result of re-assortment of influenza viruses in person co-infected with both human and avian influenza, Members reiterated their recommendation (see Annex B) that seasonal influenza vaccine be provided for poultry workers as a precautionary public health measure.

For the purpose of offering flu vaccination, a definition of poultry workers has been drawn up by the Health Protection Agency in consultation with industry representatives, the Department for Environment, Food and Rural Affairs and Department of Health.

#### **Workers other than poultry workers**

Members endorsed the proposal to offer flu vaccination to those persons working within the State Veterinary Service whose work involves them in close direct contact with poultry at premises required to be registered on the Great Britain Poultry Register or at approved poultry slaughterhouses, and to people who undertake cloacal swabbing of live wild birds in support of Defra's wild bird surveillance programme at premises under the control of the Wildfowl and Wetlands Trust.

## **Pig workers**

Pigs are known to be susceptible to both human and porcine influenza viruses and can also be infected with avian influenza viruses. Human influenza viruses of strains H1 and H3 are widely distributed in pig populations, with the ever present potential for virus re-assortment within the pig. However, there is little evidence to suggest that pigs have a role to play in the transmission of influenza to humans. The current scientific consensus is that transmission of influenza mainly occurs from humans to pigs, rather than transmission from pigs to humans. Current evidence from outbreaks of H5N1 in poultry does not indicate any significant transmission of H5N1 from birds to pigs, and there is no evidence of transmission of avian influenza from pigs to people.

Members were of the view that those working with pigs do not need to be routinely protected against seasonal flu.

## **Implementation of a vaccination scheme this winter**

Members were informed that there had been only three reported confirmed cases of influenza so far this winter, indicating that the flu season had not yet started in the UK. This low incidence of influenza was reflected across other EU member states. Members were therefore of the view that vaccine should be offered to poultry workers from January onwards.

Members were made aware of the geographical spread of poultry workers across the UK and of the difficulties in identifying all those who would be eligible to receive vaccination under the scheme. Vaccination would be offered on a voluntary basis and the DH proposed to operate a scheme separately from the routine winter flu vaccination programme that is aimed at those people who are considered to be at 'high risk' from contracting flu. The vaccination scheme for poultry workers would be coordinated through PCTs with additional vaccine and resources provided. Contact with poultry workers would initially be through their place of work by contacting registered poultry keepers and approved slaughterhouse operators. Other proposed routes for contacting poultry workers were being explored with industry.

Members were concerned that uptake of vaccine might be low given the difficulties that PCTs were likely to experience in making the necessary arrangements for vaccination.

**ANNEX A – Background papers provided to ACDP members for 4<sup>th</sup> December 2006 meeting**

- Report of a WHO working group - Influenza research at the human and animal interface, Sep 2006
- S. Yamada *et al.* Haemagglutinin mutations responsible for the binding of H5N1 influenza A viruses to human-type receptors. *Nature*. 2006 Nov 16;444(7117):378-82.
- Smith *et al.* Emergence and predominance of an H5N1 influenza variant in China. *Proc Natl Acad Sci U S A*. 2006 Nov 7;103(45):16936-41.
- Defra International Animal Health Division Commentary, March 2006. Potential role of certain free living avian and free living and domestic animal species in the epidemiology of highly pathogenic avian influenza (H5N1)
- Alexander DJ (2006). Avian influenza viruses and human health. Proceedings of the OIE/FAO International Conference on Avian Influenza. *Developments in Biology* vol 124 Basel Karger pp 77-84
- HPA report, May 2006. Addressing a Quantitative Microbiological Risk Assessment (QMRA) of the risks posed to UK public health by Highly Pathogenic Avian Influenza H5N1
- Maines *et al.* Lack of transmission of H5N1 avian – human reassortant influenza viruses in a ferret model. *Proc Natl Acad Sci U S A*. 2006 Aug 8;103(32):12121-6.
- ECDC technical report, June 2006. The public health risk from Highly Pathogenic Avian Influenza viruses emerging in Europe with specific reference to type A/H5N1
- Webster *et al.* H5N1 Influenza – continuing evolution and spread. *N Engl J Med* 2006 Nov 23; 355(21):2174-7

## **ANNEX B**

### **Advisory Committee on Dangerous Pathogens**

#### **Statement from ad-hoc ACDP meeting held on Friday 28<sup>th</sup> October 2005 at the Department of Health, Skipton House, SE1 6LH**

An urgent meeting of the Advisory Committee on Dangerous Pathogens (ACDP) was convened to consider the public health measures that would be needed in the event of avian influenza (AI), either low pathogenic AI (LPAI) or highly pathogenic AI (HPAI), being found in poultry or wild birds in the UK. Members were asked to consider the precautions to be taken by those working with poultry or wild birds, those undertaking surveillance of avian species and advice to be given to the wider public. Precautions to be taken by those working with pigs were also considered, given that pigs can be infected by some avian influenza viruses and are susceptible to both human and porcine influenza viruses.

#### **Background**

There is currently no evidence of AI in poultry or wild birds in the UK. However, the widespread outbreaks of H5N1 in poultry in SE Asia, the continuing findings of spread of H5N1 viruses amongst wild birds in Northern Europe and the recent finding of an H5N1 positive bird in quarantine in the UK has increased the need to be prepared against AI infection. The Government needs to provide clear guidance on the public health implications of AI infection in poultry and wild birds to all who are potentially at risk.

Members were provided with background papers as set out in Annex 1.

Members were specifically asked for their views on the draft guidance, prepared by a cross-Government and Industry Working Group, on measures to be taken to protect the health of those working with poultry, and on the protocol prepared by Defra covering the submission of samples from wild birds for laboratory investigation.

This ACDP meeting comes at a time when sample surveillance of poultry flocks is underway and two new surveillance studies of wild birds have recently commenced in accordance with EC requirements. A positive finding of low pathogenic strains of AI amongst wild birds is considered likely. The public health implications of such findings need to be addressed.

#### **Summary of current findings and recommendations for public health**

- Avian influenza viruses do not appear to cross the species barrier from birds to people easily.
- Though data on transmissibility is limited, there is evidence that both LPAI and HPAI can pass from poultry to people, and the risks of such transmission is likely to be the same for both LPAI and HPAI. The severity of any illness that arises may vary according to the particular strain of virus and the person's susceptibility, including whether they have any co-infection.

- Current evidence from the H5N1 outbreaks in Asia suggests that the H5N1 strain does not pass easily from poultry to people, though data may be lacking as to the total number of people who have been infected, particularly in areas of poor surveillance and those infected without showing signs of serious disease.
- Evidence to date indicates that the risks to people of acquiring infection are almost entirely confined to those who have close contact with infected poultry and there is so far no evidence of transmission from wild birds to people.
- Poultry, wild birds and game birds can present a range of zoonotic disease risks to those who work with or handle them, and precautions should always be taken to prevent the risk of disease transmission.
- Wild birds can be infected with a range of avian influenza viruses the majority of which are species-specific in causing disease. Wild birds, particularly ducks, can be infected with both LPAI and HPAI strains without showing outward signs of disease, even when they have high viraemia.
- LPAI viruses do not appear to mutate into HPAI strains within wild birds.
- LPAI viruses have been shown to have the potential to mutate into HPAI within poultry, and these can then infect wild birds.
- There is a theoretical risk of influenza virus re-assortment if people with seasonal influenza become co-infected with avian influenza. Vaccination against seasonal flu of those people most at risk of avian influenza will reduce the risk of such influenza virus re-assortment.
- Pigs can be infected with some strains of avian influenza virus, and are susceptible to both porcine and human influenza viruses. Human influenza viruses are circulating between pigs all the time. However, there remains a theoretical risk of virus re-assortment within pigs between human and avian influenza viruses in the event of pigs being co-infected.
- Overall, the public health risks posed by avian influenza, in the absence of outbreaks of H5N1 in poultry in the UK remain low. Appropriate hygiene precautions to prevent any infection from handling wild birds, game birds or poultry should always be taken by the public and appropriate zoonotic disease prevention measures as recommended by the HSE and as indicated by risk assessment should be taken by those handling poultry and wild birds in the workplace. Such preventive measures may need to be enhanced if AI is confirmed, depending upon local risk assessment.

## **ACDP Advice and Recommendations for Public Health**

### **Poultry workers**

ACDP Members emphasised that there are many zoonotic diseases other than avian influenza that pose a threat to the health of poultry workers and others in direct contact with poultry. There was agreement that the precautions necessary to protect against these other zoonotic health risks also offered protection against infection with avian influenza. Members agreed that in some circumstances, such protection would need to be increased, based upon local risk assessments. The ACDP endorsed guidance drafted by a cross-Government and Industry Working Group on precautions to be taken by the poultry industry to protect workers from avian influenza infection. Members recommended that this guidance be supplemented by posters and/ or leaflets that presented the key points in language appropriate for the intended audience. The Working Group was comprised of representatives from the National Farmers Union, British Egg Industry Council, British Poultry Council, Health and Safety Executive (HSE),

Health Protection Agency, Department of Health, Department for Environment, Food and Rural Affairs (Defra) and the State Veterinary Service. This guidance has been published on both the Defra website:

[\[http://www.defra.gov.uk/animalh/diseases/notifiable/disease/ai/poultrykeepers.htm\]](http://www.defra.gov.uk/animalh/diseases/notifiable/disease/ai/poultrykeepers.htm)

and the HSE website:

[\[http://www.hse.gov.uk/biosafety/diseases/avianflu.htm\]](http://www.hse.gov.uk/biosafety/diseases/avianflu.htm).

Members were reminded of the current advice, which is that in a confirmed outbreak of avian influenza, all those who might have been exposed to highly pathogenic avian influenza through direct contact with infected poultry, or who are at risk of such exposure, should be offered antiviral therapy (oseltamivir) for the prevention of disease, and the Joint Committee on Vaccination and Immunisation has recommended that seasonal flu vaccine be offered to all those at risk of infection as a public health measure to prevent risk of virus re-assortment. ACDP Members were aware of the diversity amongst the workforce involved across the whole of the poultry and game industry and of the difficulties this presented in practice.

In view of the discussions around the equal risks of transmissibility to people of LPAI and HPAI from poultry, and the time taken for flu vaccine to produce an immune response, Members were of the view that JCVI should be made aware of ACDP's recommendation for routine use of seasonal flu vaccine for poultry workers and others in the light of the current risk assessment by Defra of a high risk of further global spread of avian influenza amongst wild birds.

Additionally, the ACDP considered that serological surveys of workers in the different sectors of the UK poultry industry (e.g. poultry cullers, husbandry staff, vets etc) could provide useful information about infection risks and exposures and should be carried out if possible. It was felt that such studies were urgently needed to further evaluate the potential for avian-to-human transmission of avian influenza (both LPAI and HPAI) within the UK. The Chair was asked to write to the Health Protection Agency to express the ACDP's strongly held views on the value of such studies. Data were presented indicating a 3.8% seroprevalence to LPAI in Italian poultry workers, none of whom experienced a flu-like syndrome.

### **Game Birds**

The ACDP noted that people in close contact with game birds, would have a similar risk of exposure to AI, and therefore should have the same precautions offered to them as poultry workers. The Health and Safety Executive agreed to look into providing specific advice for this group of workers.

### **Wild birds**

The risk of transmission of either LPAI or HPAI from wild birds to the general public was considered to be small. The ACDP were of the view that although the general public should not in general handle dead wild birds, there were those who would need to for a variety of reasons, as well as those who would wish to. Members considered that the

general public need only to adopt common-sense precautions, and that these should be more clearly set out for them so as to be easily followed.

The ACDP noted that the Defra surveillance programme of wild birds for AI involved both an ongoing, established survey of dead birds in which there is public participation by bird enthusiasts, and a survey of wild birds in which samples are taken from live birds (cloacal swabs). A protocol for the submission of dead birds and the taking of samples from live birds has been produced by Defra. ACDP agreed with the advice given but recommended making it clear that the protocols for sampling are intended for individuals who have received appropriate training in the methods to be used and who are handling carcasses or live animals as part of their job, and are not aimed at the general public. It is intended that the amended protocol will be published on the Defra website.

### **Pigs**

ACDP noted that pigs can be infected by some avian influenza viruses and are susceptible to both human and porcine influenza viruses. It was noted that the hypothesis that pigs act as the “mixing vessels” for influenza viruses from which a new pandemic human strain arises is no longer widely held to be correct, as there was little evidence that a flu strain dangerous to public health has been produced in this way. Human flu viruses of the H1 and H3 strains are established in pigs and circulate between pigs all the time. There is, however, the theoretical risk that co-infection of the pig with avian influenza and human influenza could lead to re-assortment to produce new strain of public health significance and a precautionary approach should be adopted. Members were of the view that JCVI should be asked to consider the use of seasonal flu vaccine for those in close direct contact with pigs as a public health measure to minimise the chance of recombination between seasonal flu, porcine or avian flu in pigs with transmission back to people.

## Annex 1 – Background open papers provided to ACDP Members

- ECDC Papers – Interim ECDC Risk Assessment "The Public Health Risk from Highly Pathogenic Avian Influenza Viruses Emerging in Europe with Specific Reference to type A/H5N1" (version 19th October 2005) and "Interim Guidance for Workers Protection" (version 19th October 2005), including the 3 references from the latter document
- EFSA Report - "Opinion of the AHAW Panel related to animal health and welfare aspects of Avian Influenza"

[http://www.efsa.eu.int/science/ahaw/ahaw\\_opinions/1145\\_en.html](http://www.efsa.eu.int/science/ahaw/ahaw_opinions/1145_en.html)

- Pro-med summary from 6th Jan 05 about Netherlands Avian Influenza Outbreaks
- Puzelli, S. et al. Serological Analysis of Serum Samples from Humans Exposed to Avian H7 Influenza Viruses in Italy between 1999 and 2003 (2005) JID 2005:192 (15 October) p-1318 - 1322
- Defra Exotic Animal Disease Generic Contingency Plan (especially pages AI 12-13 in Part III)
- JCVI Meeting summaries - JCVI website