

## Rapid communications

# PUBLIC HEALTH RESPONSE TO AN AVIAN INFLUENZA A (H5N1) POULTRY OUTBREAK IN SUFFOLK, UNITED KINGDOM, IN NOVEMBER 2007

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An outbreak of highly pathogenic avian influenza (HPAI) H5N1 in a poultry farm in Suffolk, United Kingdom, in November 2007 prompted a comprehensive public health response to stop the transmission of avian influenza to humans. A total of 176 of 178 potentially exposed (99%) received oseltamivir prophylaxis. The majority of them, 169 people (96%), received the influenza vaccine during the outbreak. Thirty people who had been given post-exposure prophylaxis were actively followed up for one week. None of them developed symptoms suggestive of influenza-like illness. Serological investigation (28-day testing) of those who reported symptoms is ongoing.

### Background

HPAI H5N1 was reported in Europe in 2006, mainly in wild birds [1]. In February 2007, there was an avian influenza outbreak on a large turkey farm in Suffolk [2]. On 12 November 2007, a second outbreak of HPAI H5N1 in poultry occurred on another farm in Suffolk and was confirmed on the same day by the Department for Environment, Food and Rural Affairs (DEFRA) [3]. The affected farm contained approximately 5,000 turkeys, 1,000 geese and 4,500 ducks. It was a free-range farm, where birds were kept indoors at night but in paddocks during the day, thus potentially exposing them to wild birds (for which the area is well-known).

The public health response led to the formation of a local Incident Management Team on 12 November [4], which undertook appropriate public health action.

### Response to the incident

The main issues to be resolved early in the incident were to identify all workers who may have already been exposed (post-exposure) and anyone still at risk of being exposed (pre-exposure), and administer antiviral prophylaxis (oseltamivir). All workers in the pre-exposure group used filter face piece, protection level 3 (FFP3) respirator masks, according to recommendations [5].

Seasonal influenza immunisation, having a lower priority in acute situations, followed shortly afterwards [6].

Workers who required post- and pre-exposure prophylaxis (n=178) were identified through close cooperation with the Institute for Animal Health, which was responsible for the containment of the poultry outbreak. Prophylaxis and immunisation was provided by local public health doctors and nurses in a small community hospital close to the farm.

Identification of infections in poultry on a second farm and of four dangerous contact premises (epidemiologically linked to the

first infected farm) made management of the outbreak and the public health response more complicated and resource-intensive. It required the additional culling of 50,000-70,000 birds.

The local Health Protection team followed national guidelines from the Health Protection Agency regarding intervention and surveillance of exposed individuals [6]. All people who had received post-exposure treatment were followed up by clinical staff of the local Health Protection team for seven days after their last exposure. Those on pre-exposure prophylaxis were followed up for 48 hours if they complained of (minor) symptoms that did not fulfil the case definition of influenza-like illness or severe life-threatening illness [4] (within seven days of the last possible exposure), and thus did not require detailed assessment and avian influenza virological testing in hospital.

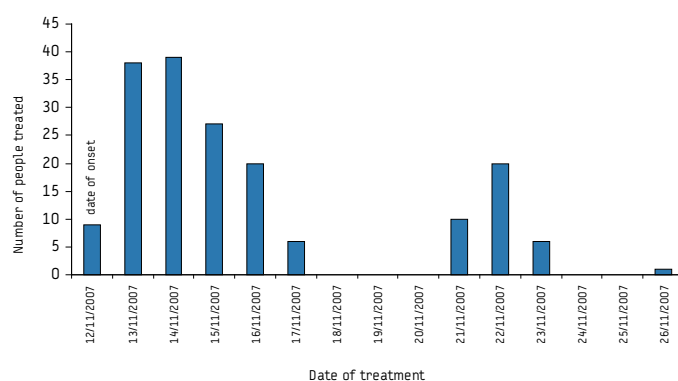
### Oseltamivir prophylaxis

As a result of the outbreak, 176 people received a single course of oseltamivir, 38 received a second set and eight received a third. The dates on which the first treatment was administered were spread over a period of 10 days (Figure 1).

The first peak illustrates the immediate response. The second peak indicates treatment of workers involved in the large-scale culling (50,000-70,000 birds) at the late stage of the incident.

FIGURE 1

Number of poultry workers given oseltamivir by date, H5N1 outbreak in poultry, Suffolk, United Kingdom, November 2007 (n=176)



### Occupation of workers given prophylaxis

Occupation at the time of the potential exposure was one of the important areas looked at during data collection (Table 1).

It was not possible to categorise the poultry workers according to contact type 1-3 because in this outbreak some of the farm workers were involved in both culling and catching the birds [6].

### Influenza immunisation

Influenza immunisation was offered to all those receiving oseltamivir prophylaxis in order to prevent them from contracting ordinary influenza during their potential incubation of the H5N1 virus. This is done to prevent simultaneous infection with seasonal influenza virus and the potential risk of reassortment with H5N1 virus. Table 2 shows the number of workers who were immunised against influenza.

Ninety-six percent of the 176 people exposed and/or involved in the outbreak had received seasonal influenza vaccination either prior to, or as a result of outbreak management.

### Prophylaxis and immunisation by category of exposure

Post-exposure prophylaxis was given to 30 people (Table 3). All of them were followed up by the local Health Protection team for seven days.

All those exposed were given leaflets containing information on symptoms and how to contact the local Health Protection Unit in case they developed even mild symptoms. Four workers on pre-exposure prophylaxis who reported mild symptoms were followed up for 48 hours. According to national guidelines, none of those were tested for H5N1, since their symptoms were mild [4].

### Conclusions

In connection with the described outbreak, a total of 176 people were given prophylaxis, and 169 received influenza vaccine. It is noteworthy that, despite different recommendations, fewer than 10% of the poultry workers had been vaccinated prior to the outbreak and information on vaccination was missing for seven (4%).

The number of workers involved in the outbreak exceeded the numbers anticipated, mainly because of the identification of a second infected farm and four other dangerous contact premises (epidemiologically linked to the first infected farm).

The early identification of candidates for post-exposure prophylaxis is very important. Twenty-five out of 30 people received prophylaxis within 12 hours of the Health Protection Agency (HPA) becoming aware of their exposure.

The response from the relevant public health departments was swift but resource-intensive, especially as further unexpected culling of poultry became necessary on other dangerous contact sites later in the outbreak. Clear and consistent guidance from the HPA was helpful [4,6].

Surveillance and distribution of information to all those involved in such outbreaks are of utmost importance in order to detect any transmission of avian influenza to humans. In this outbreak, this was done in the form of active telephone follow-up of the post-exposure group and the distribution of leaflets. These measures

TABLE 1

Type of work at the time of the outbreak, H5N1 outbreak in poultry, Suffolk, November 2007 (n=176) \*

Type of work	Post-exposure	Pre-exposure
Farm worker	13	3
Animal health staff/DEFRA	5	39
Catcher	0	42
Culler	0	17
Incinerator	0	31
Cleanup/decontamination	0	10
Waste disposal	0	5
Lorry driver	3	5
Other	7	43

\* Some people were involved in more than one type of work during the outbreak, hence the total exceeded 176.

TABLE 2

Number of poultry workers vaccinated against influenza and time of vaccination, H5N1 outbreak in poultry, Suffolk, November 2007 (n=176)

Criteria for influenza vaccination	Number	Percentage of those receiving prophylaxis
Received as part of the outbreak management	155	88
Received prior to the outbreak	14*	8
Unknown	7	4

\* The Department of Health recommends vaccination against seasonal influenza for poultry workers since January 2007, but this has not fully been implemented yet.

TABLE 3

Number of poultry workers on prophylaxis and number vaccinated by category of exposure, H5N1 outbreak in poultry, Suffolk, November 2007 (n=176)

Category of exposure	Prophylaxis	Influenza vaccine
Post-exposure	30	30
Pre-exposure	146	139
<b>Total</b>	<b>176</b>	<b>169</b>

were considered as important as oseltamivir prophylaxis and the use of personal protective equipment by pre-exposed individuals. The assessment of effectiveness of the interventions is beyond the scope of this report.

To decrease the risk of a pandemic most effectively, the public health and animal health sectors must collaborate in order to limit human exposure to HPAI viruses by controlling virus circulation among poultry, restricting people entering infected premises

unnecessarily, and advising the use of personal protective equipment for all those pre-exposed. These measures can be further supported by assessing the risk of human exposure to avian influenza virus and implementing risk-based mitigation measures [7,8].

## References

1. World Health Organization. H5N1 avian influenza: Timeline of major events. 02 January 2008. Available from: [http://www.who.int/csr/disease/avian\\_influenza/timeline2008\\_01\\_02.pdf](http://www.who.int/csr/disease/avian_influenza/timeline2008_01_02.pdf)
2. Health Protection Agency. Highly Pathogenic Avian Influenza (H5N1) Virus Infected a Turkey Farm in Suffolk, England. News Archives. Volume 1(6). 9 February 2007. Available from: [http://www.hpa.org.uk/hpr/archives/2007/news2007/news0607.htm#av\\_flu](http://www.hpa.org.uk/hpr/archives/2007/news2007/news0607.htm#av_flu)
3. Department for Environment, food and Rural Affairs. Preliminary Epidemiology Report: Avian Influenza Outbreak in Suffolk, November 2007 as on 26 November 2007. Available from: <http://www.defra.gov.uk/animalh/diseases/notifiable/disease/ai/pdf/ai-prelim-epireport071129.pdf>
4. Health Protection Agency. J3. WHO Pandemic Alert Phase 3: Draft algorithm for the management of personnel involved in the response to an occurrence of confirmed highly pathogenic avian influenza (H5N1 only) in the poultry in UK, presenting with febrile respiratory illness. 30 August 2007. Available from: [http://www.hpa.org.uk/infections/topics\\_az/influenza/avian/documents/J3poultrymanagement300807.pdf](http://www.hpa.org.uk/infections/topics_az/influenza/avian/documents/J3poultrymanagement300807.pdf)
5. Health and Safety Executive. Avoiding the risk of infection when working with poultry that is suspected of having Highly Pathogenic Avian Influenza (HPAI). Available from: <http://www.hse.gov.uk/biosafety/diseases/aisuspected.pdf>
6. Health Protection Agency. C3 Draft algorithm: WHO Pandemic Alert Phase 3: Post Exposure Prophylaxis (PEP) for farm workers/residents, Animal Health staff and cullers involved in confirmed or suspected outbreaks of highly pathogenic avian influenza suspected or known to be due to H5N1 in poultry in the UK. 30 August 2007. Available from: [http://www.hpa.org.uk/infections/topics\\_az/influenza/avian/documents/C3poultrycontacts300807.pdf](http://www.hpa.org.uk/infections/topics_az/influenza/avian/documents/C3poultrycontacts300807.pdf)
7. Hien TT, de Jong M, Farrar J. Avian influenza - a challenge to global health care structures. *N Engl J Med.* 2004;351(23):2363-5. 8. Mumford E, Bishop J, Hendrickx S, Embarek PB, Perdue M. Avian Influenza: risks at the human-animal interface. *Food Nutr Bull.* 2007 Jun;28(2 Suppl):S357-63.

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