

## AVIAN INFLUENZA IN ASIA

No. 6, 2004

Since November 2003, an outbreak of avian influenza A(H5N1), bird flu, has spread among poultry in Cambodia, Hong Kong, Indonesia, Japan, China, South Korea, Thailand and Viet Nam. Other countries in Asia have also reported deaths in poultry flocks and which are currently being investigated. To date, Thailand and Viet Nam are the only countries where transmission from poultry to humans has been confirmed. In Viet Nam there have now been reports of 13 cases, nine of which died. In Thailand, the virus has been isolated from four patients, of whom three died. From Viet Nam there have been reports of two adult sisters, both of whom died following close contact with two other sick family members, of whom one died and the other recovered. The latter two people were not investigated for avian influenza virus. One of the sisters and the now deceased family member had previous close contact with ducks during preparations for a party. It has not been possible to identify a possible source of infection of this kind for the other two people. As a result, the possibility that the virus has been transmitted from the sick, now deceased family member cannot be excluded. No illness was reported from neither other guests at the party, people in the area where the party took place, nor the staff who cared for the patients during their stay in hospital. There are no restrictions on travel to Asia, including Thailand and Viet Nam. Contact to live poultry should be avoided, but there is no risk from eating well-cooked poultry and eggs. Nevertheless, frequent hand washing is recommended. This season's influenza vaccine does not protect against H5N1.

### Incidence

Avian influenza is an infectious disease caused by influenza A virus, which can lead to high mortality among poultry. The virus is classified according to haemagglutinin (HA) and neuraminidase (NA) antigens, where 15 HA and 9 NA subtypes have been found. To date, highly pathogenic avian influenza viruses have been subtypes with H5 and H7. Most possible combinations of subtypes are of low pathogenicity and have been isolated from birds.

The disease has been described since 1880 and appears worldwide. All species of birds can be infected; in turkeys and chickens, the infection is often serious. Type A influenza virus is

also found in humans, horses, pigs and a few other mammals. Since 1997, there have been several outbreaks of avian influenza worldwide with H5 or H7 strains among poultry. Of these, three outbreaks have involved humans:

- Hong Kong 1997: Outbreak of avian influenza type H5N1; 18 persons were infected, six of these died. The outbreak was contained by killing about 1.6 million chickens during a period of a few days, EPI-NEWS 19/98.

- Hong Kong February 2003: Outbreak of avian influenza type H5N1; three people were infected, of whom two died. All came from the same family and are thought to have been infected from poultry during a visit to southern China, EPI-NEWS 11/03.

- The Netherlands, Belgium and Germany spring 2003: Outbreak of avian influenza type H7N7 among poultry. In the Netherlands, the virus was isolated in 89 persons, of whom one person died. The outbreak led to about 31 million poultry being killed, EPI-NEWS 42/03.

### Route of infection

Web-footed birds constitute a natural reservoir for the virus. The virus is secreted from the airways and particularly through the faeces. Infection occurs through close contact with living infected birds or from dust containing dried and powdered excrement. On transfer of the virus to mammals, and to humans in particular, point mutations can occur by so-called antigenic drift, in the genes for HA and NA. If a person is infected simultaneously with both bird flu and ordinary influenza, genetic material from the two viruses can mix, by what is known as antigen shift. In this way, new human influenza viruses can arise.

### Symptoms

The incubation period for influenza is normally one to two days. Human cases of avian influenza often include conjunctivitis, but not rhinitis or throat symptoms. Ordinary influenza symptoms can also appear, with sudden onset of rigors, fever, general malaise, headaches and muscle pains. In serious cases, the infection can lead to pneumonia and/or multiorgan failure.

### Diagnostics

On suspicion of a human case of avian influenza, the Serum Institute should be contacted to establish further measures.

The SSI has developed a diagnostic test based on PCR technology which can identify all HA and NA types in humans, birds and pigs directly on clinical material.

### Treatment

Treatment is symptomatic. Laboratory trials have shown that the neuraminidase inhibitor oseltamivir (Tamiflu) will probably also be effective against avian influenza A(H5N1).

### Comments

This current outbreak of avian influenza among poultry in Asia is on a scale that has not previously been described.

In the course of the last 100 years, the population of the world has tripled, and half live in urban areas. With a parallel multiplication of the global population of domestic animals, the risk of infection is now much greater. Also, considering the great mobility in the world, it must be assumed that a new influenza virus could today spread to all parts of the world in the space of a few days. However, it is important to emphasise that at present, there is no efficient transmission between humans, not even in Viet Nam. Limited transmission between humans has previously been seen in the outbreaks in Hong Kong in 1997 and the Netherlands in 2003.

The outbreak in Asia clearly demonstrates the risk of a pandemic and thus the importance of surveillance and international co-ordination of efforts. WHO has taken the initiative for developing a new vaccine. (S. Glismann, Dept. of Epidemiology, A. Fomsgaard, P. Grauballe, Dept. of Virology)

### TETANUS – IV DRUG USERS UK

Since summer 2003, 12 cases of tetanus in IV drug users have been recorded, ten in England and two in Scotland. The last case appeared on 6 January. Symptoms have varied from mild trismus to fulminant tetanus with respiratory arrest. At least five patients have injected heroin subcutaneously, in what is known as 'skin popping'. The distribution of the cases over time and place indicates that contaminated heroin, which continues to circulate, is a probable source of infection. The most recent notified case of tetanus in Denmark was in 2001. (Department of Epidemiology)

### Serum specimens positive for *Mycoplasma pneumoniae* by complement fixation test

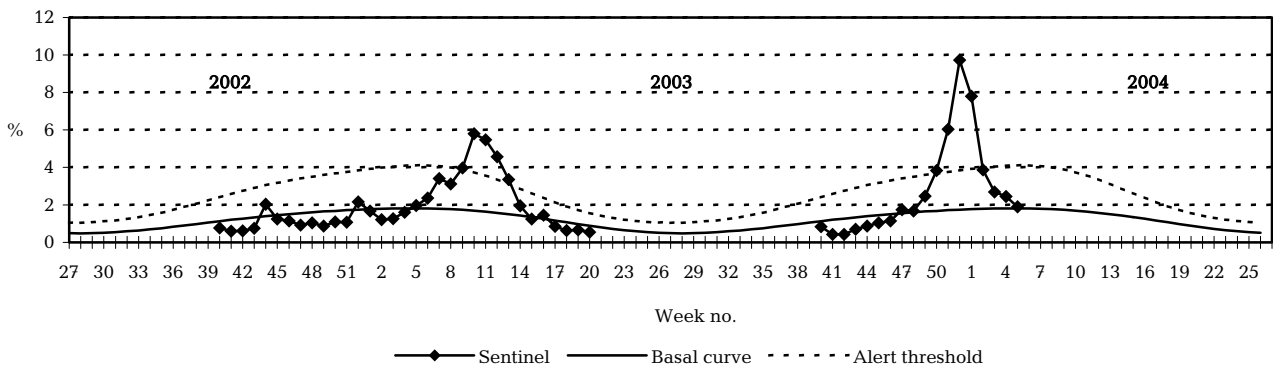
4th quarter of 2003 compared with 4th quarter of 2002, and average for 4th quarter of 1998-2002

	October	November	December
Positive specimens during 4th quarter of 2003	40	50	39
Positive specimens during 4th quarter of 2002	147	113	73
Positive specimens, average 4th quarter of 1998-2002	134	203	149

(DBMP)

### Sentinel surveillance of the influenza activity

Weekly percentage of consultations, 2002/2003/2004



- Sentinel:** Influenza consultations as percentage of total consultations
- Basal curve:** Expected frequency of influenza consultations under non-epidemic conditions
- Alert threshold:** Possible incipient epidemic

(Dept. of Epidemiology)

### Secretion specimens received from the sentinel surveillance system

Week no.	2003												2004																
	44	45	46	47	48	49	50	51	52	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
No. received	0	5	6	12	9	10	23	28	15	10	19	9	8	2															
Influenza A											2	4	3																
A/H3				3	1	6	7	12	4	3	1																		
A/H1																													
Influenza B																													

(Depts. of Epidemiology & Virology)