



AVIAN INFLUENZA (BIRD FLU)

The facts about avian influenza

- Avian influenza - better known as bird flu - is an infectious disease of birds caused by type A strains of the influenza virus. The disease was first identified in Italy more than 100 years ago. It occurs worldwide¹
- Until mid-December 2003 however, avian flu was considered a rare disease with only 21 outbreaks amongst birds reported worldwide after 1959, most of them in Europe and the Americas
- Since 2003 a severe form of avian influenza - H5N1 - has affected poultry flocks and other birds in more than 50 countries. Most recently, Spain reported its first case of avian flu on 7th July 2006²

Humans and avian influenza

- Avian flu was thought only to infect birds until the first human cases were found in Hong Kong in 1997³
- In general there are three main groups of flu viruses (A, B and C). Influenza B and C viruses only infect people but influenza A viruses have the ability to cross the species barrier and infect people, birds, and animals such as pigs and horses
- Among people, influenza A is the source of ordinary flu epidemics and has caused all previous flu pandemics. Avian flu is caused by a subtype of influenza A: H5N1 virus⁴
- According to the World Health Organization (WHO), there is mounting evidence that the H5N1 strain has a unique capacity to jump the species barrier and cause severe disease, with high mortality, in people
- Humans can catch avian flu through close contact with live infected birds. Birds excrete the virus in their faeces, which dries and becomes pulverized, and is then inhaled⁵
- There is no firm evidence that H5N1 has the ability to pass easily from person to person. But if it does acquire this characteristic, H5N1 could then spread widely and rapidly among people with the potential to cause another influenza pandemic
- Until now, instances of spread from one person directly to another have been isolated one-off occurrences. Person-to-person transmission would need to be more efficient and sustainable for the virus to cause a pandemic⁶

- If an avian flu virus manages to merge with a human flu virus however, it could become easily passed between humans and be highly dangerous

The impact of avian flu

- Avian flu appears to have a high mortality rate among people who get it⁷
- As the virus can affect all parts of the body, not just the lungs, this suggests that many illnesses, and even deaths, may have unwittingly been due to the bird flu virus⁸
- WHO statistics (14 July 2006) cite 230 laboratory-confirmed human cases of avian flu of whom 132 have died⁹
- Most notable include Vietnam, where 42 out of 93 infected with the virus have died, and Indonesia, where 41 out of 53 have died¹⁰
- There has also been widespread concern as cases of bird flu in humans have spread further west: in Turkey, 12 people have been infected of whom 4 have died
- WHO has suggested that Bird Flu could be more deadly than the SARS virus¹¹

Who is it most likely to affect?

- All human cases were probably caused by close contact with live infected poultry in the case of H5N1
- Young children seem especially vulnerable to the virus. Some scientists speculate they may simply be more likely to breathe infected dust or faeces
- It is important to note however that tens of thousands of unprotected Asian workers involved in culling chickens have not developed the disease. At this point, too few people have been infected to know all the possible risk factors for bird flu¹²

Symptoms of Avian Flu

- In birds, the viruses cause a range of symptoms from mild illness to highly contagious disease, which kills nearly every bird that catches it. Frequently, they may die without any signs of disease being apparent. There can however be considerable variation in the clinical picture and severity of the disease¹³
- Symptoms of bird flu in people range from conjunctivitis, to flu-like symptoms - fever, cough, sore throat, muscle aches and in severe cases breathing problems - which can lead to pneumonia, acute respiratory distress and other severe and life-threatening complications¹⁴

Treatment

- There is some evidence that recent H5N1 viruses are susceptible to a class of antiviral drugs called neuraminidase inhibitors - like Tamiflu, although they appear to be resistant to the alternative antiviral drug, amantadine
- Recent cases of H5N1 in northern Vietnam have caused concern because of signs that the virus is changing. It has become less lethal and is occurring in larger clusters than previous cases. Studies also suggest that the virus is diverging genetically
- Tamiflu can generally save lives if it is given early, no more than two days after symptoms first appear. In May 2005 however, the WHO reported that a patient in Vietnam had a strain of H5N1 resistant to Tamiflu¹⁵
- The Government is working to expand its stockpile of antiviral drugs as a contingency plan for a pandemic, whether due to an H5N1 or another new strain. On 1 March 2005, the Health Secretary announced the procurement of 14.6 million doses of the antiviral, Tamiflu - enough to treat only a quarter of the UK population¹⁶

Vaccinations

- In general, it is better to have a vaccine prepared before a possible outbreak of an influenza pandemic
- Vaccines are the principal medical intervention for protecting humans and animals against pandemic. If available rapidly and in sufficient quantities, they can reduce morbidity and mortality
- However, many problems need to be resolved before vaccines can assume such a role in mitigating the effects of the next pandemic. The most important need is to find vaccine formulations that make the best use of limited antigen supplies. The antigen is the part of the vaccine that triggers the immune response within the body
- Whether medication will be suitable for use against a pandemic flu caused by H5N1 depends on how much the pandemic strain mutates from the original H5N1 virus strain used to create the vaccine
- If the virus should continue to change substantially, it is unlikely that existing vaccines would be effective. A new one would have to be developed
- Every time an avian flu virus jumps from a bird to a person, the risk of a new flu virus being produced increases. It is thus beneficial for governments to prevent the spread of avian flu between birds¹⁷

- At present, 90% of production capacity for all influenza vaccines is concentrated in Europe and North America in countries that account for only 10 per cent of the world's population¹⁸
- Current global manufacturing capacity (estimated at 300 million doses of regular trivalent influenza vaccine per year) is not able to meet the expected global needs during a pandemic. In the current situation, the capacity to respond to seasonal influenza must be balanced against preparations for pandemic influenza¹⁹
- After urgent calls for a new weapon to fight avian flu, it was announced in June 2006 that a new H5N1 recombinant vaccine strain, NIBRG-23, has been developed by the National Institute for Biological Standards and Control in England. NIBRG-23 is available for distribution, under a Material Transfer Agreement (MTA)²⁰

Prevention

- Travellers to areas experiencing outbreaks of the disease in poultry are recommended to avoid contact with live animal markets and poultry farms. Large quantities of the virus are known to be present in the droppings from infected birds
- Travellers should not attempt to bring any live birds or poultry products back to the UK
- Experts say avian flu is not a food-borne virus, so eating chicken is still safe²¹
- In the countries that have been affected by avian flu, governments have begun to cull affected poultry stocks. By removing the potential for the virus to spread through the countries' chicken populations, it is hoped that the virus will be contained and removed from circulation²²

The situation in the UK

- EU and UK controls aim to prevent the occurrence of bird flu in UK poultry. Nonetheless, it remains a remote possibility that bird flu could be introduced through the migration of wild birds, the importation of dead chickens for consumption, the illegal importation of live birds, or the entry into the UK of a person who has acquired the illness in an infected area
- As a precautionary measure, the UK has banned imports of live chickens from the following countries: Russia, Kazakhstan, Thailand, Cambodia, China, Hong Kong, Laos, Indonesia, Vietnam, Pakistan, Malaysia, South Africa, North Korea, Turkey and Romania
- The European Commission (EC) has banned imports of all poultry, poultry meat products, and eggs from Thailand. The importation of ostrich and ostrich products from South Africa has also been banned, along with imports of other birds of the

ratite family (a type of flightless bird). Other non-poultry birds, including pet birds accompanied by their owners, have also been banned²³

- Experts have warned that there are not enough care beds in England to cope with an outbreak of avian flu
- A recent study assumes that in case of a virus mutation and with easier human-to-human transmission the NHS capacity would be far from adequate in handling a potential epidemic
- The study authors estimate a doubling to tripling of current capacity is needed. The epidemic could last eight weeks, affecting one in four people in England; that would mean 37,548 people hospitalised for avian flu. As these patients would be very sick and need access to expert care the demand would represent 208% of the current bed capacity, which would completely overwhelm hospitals²⁴
- Moreover, staff could be struck down with flu as well as patients which would compound the problem²⁵

BLF Funded Research

- BLF funds research into all respiratory conditions, including new strains of diseases like bird flu. This research relies entirely on donations.

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Avian Influenza - August 2006

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