Avian influenza – dispelling the myths!

The intention of this article is to try and put the current 'bird' or avian flu situation in Europe into context.

Before doing this let us look at the causal virus. There are many influenza viruses with many animal species (and man) having their own strains. On the avian front the influenza viruses can be divided into highly pathogenic (high path or HPAI) and low pathogenic (low path or LPAI) strains.

If we look across the avian or poultry world the majority of avian influenza viruses isolated fall into the LPAI category and only a few are HPAIs. Within the HPAIs there are a variety of highly pathogenic types including the current strain of concern, H5N1.

The ability of an avian influenza virus to cause disease in bird is dependent upon the strain of virus involved and whether it is HPAI or LPAI and the species of bird involved. For example, H5N1 is highly lethal to chickens (up to 99% mortality in 3-5 days), whereas in ducks the infection can be virtually asymptomatic with no mortality.

Outbreaks of HPAI

Over the last decade or so there have been quite a few outbreaks of HPAI (see Fig. 1). In the mid 1990s there were the problems in Hong Kong and, more recently, there have been the outbreaks in Italy and Holland. There was a small, but significant, outbreak in Pakistan that was contained by good biosecurity.

There was an isolated case in Texas, USA and a much more significant outbreak in British Columbia, Canada that virtually decimated that province's table egg industry.

Historically, the African continent has not escaped, in as much that HPAI occurred in the South African ostrich industry and devastated its export markets.

Emergence of H5N1

Then some three years or so ago HPAI caused by the H5N1 viral strain occurred in the Far East and very quickly was seen in a whole host of countries including China, Japan, Thailand, Malaysia, Indonesia and Vietnam.

That virus moved westwards into Russia, some of the countries of the Middle East and eventually reached eastern Europe and Turkey.

Fig. 1. HPAI outbreaks over the last decade.

Up until now the H5N1 problem had been in countries where there was a significant proportion of the national poultry flock as outdoor or 'village' chicken. These closely co-mingled with wild birds and the spread of H5N1 avian influenza was greatly facilitated by this situation.

For example, in the Far East it is a common practice to keep outdoor duck flocks and to let these scavenge in the rice paddy fields after harvest.

As HPAI H5N1 virus moved across Europe a different scenario occurred in that the infection was generally only seen in wild birds such as swans and waterfowls with the exception of some outdoor poultry flocks in France. That was the situation at the time of writing this article, but it could change at any time.

Table 1. Dutch human deaths in the year of HPAI in Holland.

Cause	No. of deaths
Car accidents	1,293
Alcohol related	428
Human influenza	657
Human influenza with bacterial complications	>6,000
HP avian influenza	1

Concurrently with events in Eastern Europe HPAI caused by H5N1 moved into Africa with cases of the disease being seen in countries, such as Nigeria and Niger.

To date, the situation in Western Europe is predominately a disease of wild birds rather than a disease of poultry.

Cats and martens

In Western Europe cases of H5N1 have also been seen in cats and martens. This have arisen because of these animals doing what they do naturally – killing and eating wild birds, some of which, no doubt, were infected with H5N1 HPAI. Cats, martens and the like do not cook their meat before they eat it!

The current situation in Western Europe is one of H5N1 infection in wild birds and, at the time of writing, housed commercial poultry is, for all practical purposes, free of H5N1 HPAI.

Even when H5N1 HPAI is present in poultry it is of no consequence to the consumers of poultry meat and eggs and nobody has become infected from eating these products providing they are cooked in the normal way.

Continued on page 25

Continued from page 23

To date all cases of human H5N1 infection have been associated with prolonged, close contact with infected poultry.

Unfortunately, the facts of human cases of H5N1 infection have been misreported in the general media. A very good example was the headlines some months ago that associated the death of a Vietnamese farmer with the eating of duck meat.

What that article failed to highlight was that that farmer had also grown, killed, plucked, eviscerated and portioned the duck himself, which he subsequently ate – events known to be able to infect man!

A few years ago another strain of HPAI devastated the Dutch poultry industry. The human death figures from Holland for that year puts the situation into context (see Table 1) and the one human death was that of a veterinarian who had been working closely with infected birds.

Cultural differences

If we compare Asia with Europe there are many cultural differences that will impact on the probability of H5N1 HPAI infecting man.

First and foremost, in many parts of Asia poultry and man co-mingle – in fact in rural China the farmer and his family share a small building with their poultry, pigs and, even, the dairy cow. In many instances this means they share the same air space.

Thus, we have the scenario that has been referred to in the past as 'the influenza factory' because prolonged exposure to the flu virus of another species, and especially swine viruses, increases the probability of a virus evolving or mutating so that it becomes able to infect another species such as chicken or man.

For this reason and this unique set of circumstances that persists in rural China, many of the pandemics of human flu that occurred in the past had their origins in China. These had names such as 'Mao flu' and 'Hong Kong flu'.

In Europe poultry and human populations do not co-mingle and, certainly do not co-habit! Thus, the likelihood of AI movement from poultry to man is greatly reduced.

Risk from live chickens

In the rural areas of south east Asia the best way to keep chicken meat fresh in the tropical climate is to keep it alive.

Therefore, many households buy their chickens alive and then kill, pluck, eviscerate and portion them or this is done for them at the point of purchase by the shop keeper. This presents a much greater risk of infection to the Asian consumer.

Asians love cock fighting and many of the fighting cocks literally live with their owners! One tragic human death in Malaysia was of that of the owner of a fighting cock who, in order to look after his sick bird, slept with it!

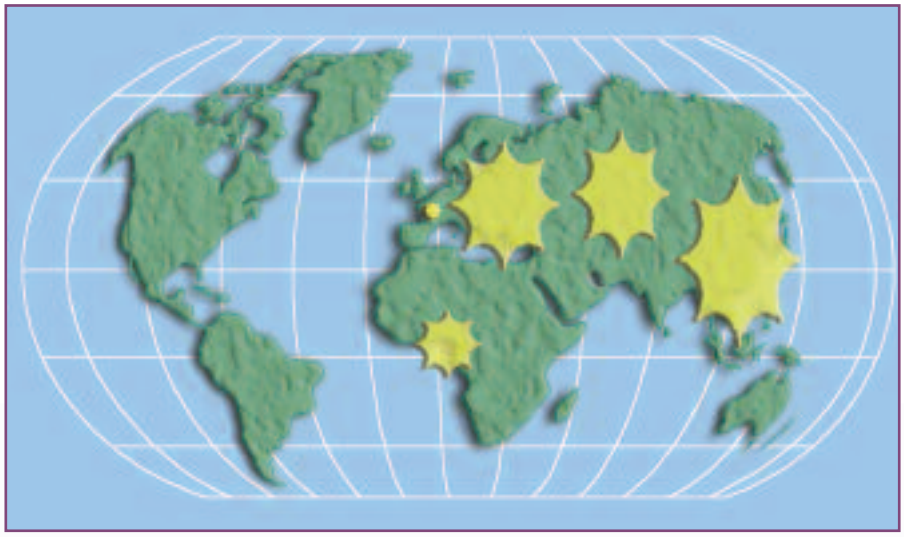


Fig. 2. The current HPAI H5N1 scenario.

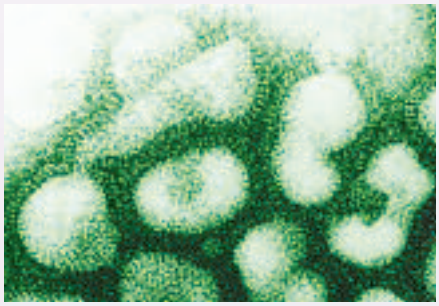
Cock fighting is not a European past time.

Currently no fresh or frozen raw poultry meat is imported by countries of the EU, the USA, Japan, Australia and a whole host of other countries from countries which have AI.

Export restrictions

In the case of Thailand this is unfortunate for the Thais because their major companies, which used to export these products, are free from HPAI but, because it is still present in some village chickens, they can not export.

They can and do export cooked poultry meat products. This is a perfectly reasonable thing to do as the cooking process is a very effective way of destroying any viruses or bacteria that happen to be in the meat prior to cooking. Yes, HPAI caused by H5N1 is also in Africa but, here again, this represents a zero threat to European consumers as African countries do not export poultry meat to the EU.



If we look at the wild bird dimension the current situation in Europe arose because of an unusual 'cold snap' that forced many species of wild birds further westwards than normal in search of food.

The extent of this movement was to a line that ran north/ south through eastern France. The weather has improved and many of these birds have moved back eastwards.

If we look at wild bird migratory pathways the wild birds from the areas of Africa that currently have H5N1 HPAI infection these tend to cross central and eastern Europe and not the western areas that include the UK.

So, if we summarise the current European situation the following become apparent:

- The current HPAI H5N1 situation in Europe is primarily a wild bird disease problem and the disease has only been seen in small poultry flocks with wild bird contact. To date, these have all been contained and there has been no spread to other poultry.
- HPAI H5N1 has not been seen in housed commercial flocks in Western Europe.
- In the UK Defra still has the risk of HPAI coming into the UK classified as a low risk.
- The major wild bird migratory pathways currently linked to HPAI H1N5 do not cross the UK.
- The current meat inspection systems would detect HPAI H5N1 infection should it occur in a commercial poultry flock and such a flock would not get to the processing plant. Even if it did the meat from it would not get into the human food chain.
- Normal cooking of meat or eggs effectively kills HPAI viruses.
- The current depressions in consumption of poultry meat in some European countries are a consequence of ill informed media hysteria and have no scientific basis.
- Recent surveys of wild birds in the UK have failed to find any influenza viruses let alone any HPAIs.

So, once again, just like we had with the British 'salmonella in eggs' scare at the end of the 1980s, we have a situation in which an irresponsible faction of the media has simply converted a 'problem' into a 'disaster'! Will we ever learn? ■