

Lets Talk Chicken
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THE HURRICANE CALLED BIRD FLU
(AI) (PART -1) IN BIRDS

Hurricanes Katrina, Sandy, Andrew, Ike, Dennis, Rita and the like have devastated many parts of the United States in the past. Recently hurricanes like Patricia did the same thing. The after effects of hurricane are manifold, huge losses of people, property etc.

It seems, the chicken all over the world would have prefixed Bird flu with 'Hurricane' had they could speak!

Now the latest outbreaks of Bird flu (Avian Influenza) were recently confirmed in Cameroon. This is the first time the disease has been found in Central Africa since 2006. According to Food and Agriculture Organization (FAO) this brings the number of countries that were affected by AI in West and Central Africa apart from Cameroon are Burkina Faso, Cote d'Ivoire, Ghana, Niger and Nigeria.

In Nigeria itself, more than 3.5 million birds were dead or culled, from about 750 outbreaks so far.

The recent outbreak in Cameroon however raises serious concern that disease may be advancing **southward!**

Organizations such as World organization for Animal Health (OIE), Food and Agriculture Organization of the United nations (FAO) etc have been warning the neighbouring countries to be vigilant and continue their heightened surveillance and prevention efforts. International Egg Commission (IEC) has put up a communications network and experts group on AI in order to face this disease squarely. On the other hand, CDC, United States of Agriculture (USDA), World Health Organization (WHO), etc focus on human health.

So far the main strain that causes Bird Flu or Avian Influenza (AI) H5N1 has brought about the death of tens of millions of poultry and losses of tens of billions of dollars worldwide.

More than 1.4 million birds were depopulated only In Hong Kong in 1997, and in 2001 the figure was more than 1.2 million birds. In Europe alone 30 million birds were destroyed in 2003.

Animal Health (OIE) who declared Bird flu as 'class A' disease targeted for emergency disease control measures is in fore front to offer countries assistance, such as risk assessments, contingency planning, technical advice etc.

Farmers, veterinarians and general public may want to get the answers for, on this very serious and interesting phenomenon called Bird Flu. Therefore, I am trying to respond to some of the possible questions that people from all walks of life, may have.

What is Bird Flu?

Avian influenza, “bird flu”, or “fowl plaque” is a contagious disease of animals caused by viruses that normally infect birds and, less commonly, pigs. Avian influenza viruses are highly species-specific, but have, on rare occasions, crossed the species barrier to infect humans.

In domestic poultry, infection with avian influenza viruses causes two main forms of disease, distinguished by low and high extremes of virulence. The so-called “low pathogenic” form commonly causes only mild symptoms (ruffled feathers, a drop in egg production) and may easily go undetected. The highly pathogenic form is far more dramatic. It spreads very rapidly through poultry flocks, causes disease affecting multiple internal organs, and a mortality that can approach 100%, often within 48 hours!

The route of infection is mainly orally (fecal- oral) and occasionally through conjunctiva or by respiratory route and the incubation period is only 3-5 days.

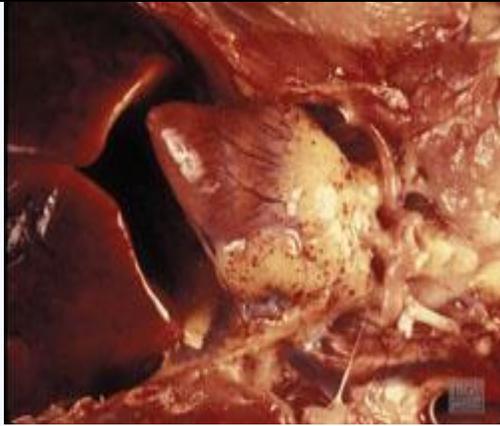
Major clinical signs are drop production, neurological signs, swelling of comb and wattles, ruffled feathers, conjunctivitis, respiratory signs etc



Congested and markedly edematous head



Chicken's shanks are swollen (edema) and extensively reddened (hemorrhages)



Numerous epicardial petechiae in the heart



Diffusely reddened, wet, and swollen lung (congestion and edema)



Multiple hemorrhages in proventricular glands



Hemorrhages over peyer's patches in the intestine

Courtesy for the images: Dr David Swayne, USDA and Center for food security and public health (Iowa university, college of veterinary medicine.)

Post mortem lesions apart from mentioned earlier include petechiae in the heart, trachea, lungs, proventriculus and intestine etc, and severe inflamed hemorrhagic pancreas and spleen.

How ever, virological and serological tests are necessary to diagnose. Viral antigen detection is one of the tests conducted commonly.

No specific treatment is found out so far. In fact outbreaks with highly pathogenic AI (HPAI) are controlled or prevented by eradication.

Which viruses cause highly pathogenic disease?

Influenza A viruses have 16 H subtypes and 9 N subtypes. Only viruses of the H5 and H7 subtypes are known to cause the highly pathogenic form of the disease. However, not all viruses of the H5 and H7 subtypes are highly pathogenic and not all will cause severe disease in poultry.

On present understanding, H5 and H7 viruses are introduced to poultry flocks in their low pathogenic form. When allowed to circulate in poultry populations, the viruses can mutate, usually within a few months, into the highly pathogenic form. This is why the presence of an H5 or H7 virus in poultry is always a cause for concern, even when the initial signs of infection are mild.

Do migratory birds spread highly pathogenic avian influenza viruses?

The role of migratory birds in the spread of highly pathogenic avian influenza is not fully understood. Wild waterfowls are considered the natural reservoir of all influenza A viruses. They have probably carried influenza A viruses, with no apparent harm, for centuries. They are known to carry viruses of the H5 and H7 subtypes, but usually in the low pathogenic form. Considerable circumstantial evidence suggests that migratory birds can introduce low pathogenic H5 and H7 viruses to poultry flocks, which then mutate to the highly pathogenic form.

Recent events make it likely that some migratory birds are now directly spreading the H5N1 virus in its highly pathogenic form. Further spread to new areas is expected.

What is special about the recent outbreaks in poultry?

The recent outbreaks of highly pathogenic avian influenza, which began in South-east Asia in mid-2003, are the largest and most severe on record. Never before in the history of this disease have so many countries been simultaneously affected, resulting in the loss of so many birds.

The causative agent, the H5N1 virus, has proved to be especially tenacious. Despite the death or destruction of an estimated 150 million birds, the virus is now considered endemic in many parts of Indonesia and Viet Nam and in some parts of Cambodia, China, Thailand, and possibly also the Lao People's Democratic Republic. Control of the disease in poultry is expected to take several years.

The H5N1 virus is also of particular concern for human health, as explained below.

Which countries have been affected by outbreaks in poultry?

Apart from what we have seen in Africa recently, from mid-December 2003 through early February 2004, poultry outbreaks caused by the H5N1 virus were reported in eight Asian nations (listed in order of reporting): the Republic of Korea, Viet Nam, Japan, Thailand, Cambodia, Lao People's Democratic Republic, Indonesia, and China. Most of these countries had never before experienced an outbreak of highly pathogenic avian influenza in the

histories.

In early August 2004, Malaysia reported its first outbreak of H5N1 in poultry, becoming the ninth Asian nation affected. Russia reported its first H5N1 outbreak in poultry in late July 2005, followed by reports of disease in adjacent parts of Kazakhstan in early August. Deaths of wild birds from highly pathogenic H5N1 were reported in both countries. Almost simultaneously, Mongolia reported the detection of H5N1 in dead migratory birds. In October 2005, H5N1 was confirmed in poultry in Turkey and Romania. Outbreaks in wild and domestic birds are still under investigation elsewhere. Now more countries have joined the 'Flu club'

Japan, the Republic of Korea, and Malaysia have announced control of their poultry outbreaks and are now considered free of the disease. In the other affected areas, outbreaks are continuing with varying degrees of severity.

Prevention and Biosecurity measures :

- Follow all-in all out system of rearing.
- Prevent contact with wild birds or their water sources
- Do not allow birds to return from the live markets
- Depopulation of infected birds
- Minimize contact with wild birds.
- Dispose the dead birds by burying, composting or incinerating.
- Follow Biosecurity measures strictly.
- Quarantine new birds for at least 21 day before introducing to the farm.
- Give utmost attention on cleaning and disinfection.

Vaccinating the birds, not done routinely. The virus shedding by the birds to the atmosphere may not be prevented by vaccination. Inactivated vaccines have been tried with varying results but the vaccinated birds are found to be carriers if exposed to the infection.

Disinfecting farm premises and poultry houses should strictly be carried out using the best disinfectants. Sodium hypochlorite, quaternary ammonium compounds, phenols, poly dimethyl ammonium Chloride etc. are some of them.

Reference: Various publications of G.D animal health Service, The Netherlands; Akzo nobel's response plan; or

Publications from Food and Agriculture Organization (FAO); Communications from International Egg Commission (IEC) and Animal Health (OIE)

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For further technical information on poultry please visit our website on : <http://www.paoz.org/>

