

## **AVIAN INFLUENZA, HIGHLY PATHOGENIC**



**This disease  
has been  
diagnosed in  
Afghanistan.**



### **1. Definition**

Highly pathogenic avian influenza is a severe, contagious viral disease of poultry causing significant morbidity and mortality and serious economic loss.

### **2. Etiology**

Influenza viruses are all members of the Influenza A group of viruses within the Genus *Influenza*, Family Orthomyxoviridae. Influenza A strains are classified based on two surface molecules - hemagglutinin (H), of which there are 16 varieties, and neuraminidase (N), of which there are 9 varieties. All H and N types occur in birds. Most strains of avian influenza do not cause disease. Those that cause severe disease are referred to as "highly pathogenic avian influenza" (HPAI). Highly pathogenic avian influenza viruses are all of the H5 or H7 designation. "Bird flu" refers only to the H5N1 strain. There are many other strains of HPAI in addition to H5N1 but none of these are referred to as bird flu.

### **3. Transmission**

Transmission is by contact with secretions and excretions from infected birds. Aerosol transmission can occur over one meter distance. Fomite transmission occurs through transfer of contaminated cages or other equipment.

#### **4. Species affected**

Many bird species can be infected with highly pathogenic avian influenza. Clinical disease is usually seen only in poultry. Some strains can infect humans. The H5N1 strain has infected hundreds of people with an approximately 50% mortality rate.

**HPAI H5N1 is a serious zoonosis!**

#### **5. Clinical signs**

The incubation period is 1-7 days. Morbidity is very high and usually almost all contact birds will become ill. Clinical disease, if noticed, is short and consists of severe depression and perhaps watery diarrhea or neurologic signs just before death. Period of clinical disease is short, sometimes only 24 hours. Mortality is close to 100%.

#### **6. Pathologic findings**

There can be edema and hemorrhage in many organs. Typically there is subcutaneous edema in the neck and head, especially comb and wattles, which may even appear cyanotic. Hemorrhage along the shanks and in the trachea is also frequent. There are petechial hemorrhages over serosal surfaces. Lungs can be edematous and hemorrhagic. But none of these lesions is so highly characteristic that HPAI can be diagnosed without laboratory confirmation.

#### **7. Diagnosis**

Highly pathogenic avian influenza cannot be reliably diagnosed on clinical and pathologic findings only. There are many “quick tests” that can be used to determine if influenza A is present, but laboratory confirmation, using ELISA or PCR should be pursued to determine the type.

Differential diagnoses include: Newcastle disease, infectious laryngotracheitis, and Gumboro disease.

## **8. Treatment**

There is no treatment for HPAI in birds.

## **9. Prevention and Control**

Control of HPAI requires keeping infected birds away from those that are susceptible. High biosecurity is recommended to minimize contact or fomite transmission and propagation of the outbreak. A number of vaccines have been developed and can be used to protect birds in the face of an outbreak.

*(photos, next page)*



HPAI –

Cyanosis of  
the comb



HPAI –

Edema of the  
neck



HPAI –

Edema and  
hemorrhage,  
lungs