

## **Infectious Bursal Disease**

Infectious bursal disease (IBD), also known as Gumboro disease after the town in Delaware (North America) where it was first identified, is an economically important virus disease of young chickens. The IBD virus replicates in immature B lymphocytes in the bursa of Fabricius (BF), leading to reduced immunologic responsiveness. The virus can cause relatively high mortality in chickens 3–6 weeks of age, and profound immunosuppression in birds infected earlier in life.

### **Etiologic Agent**

IBDV belong to the family Birnaviridae and *Avibirnavirus* genus. IBDV particles are nonenveloped with icosahedral symmetry. The genome includes two segments of double stranded RNA (dsRNA). There are two serotypes of IBDV and marked antigenic and genetic variation within each type. Strains of IBDV serotype 1 cause disease in chickens throughout the world, while serotype 2 strains, which primarily infect turkeys, neither cause disease nor protect against serotype 1.

### **Distribution, Reservoir, and Transmission.**

IBD occurs worldwide in intensive poultry-raising areas. The virus persists in nature because of its stability. The virus has reportedly persisted in poultry houses, following depopulation, for more than 100 days. There is no evidence of a true carrier state in birds. Transmission of IBDV occurs by ingestion of virus from feces or feces-contaminated fomites, feed, and water.

## **Laboratory Diagnosis**

Atrophy of the cloacal bursa is characteristic of inapparent IBDV infection in young chicks. Definitive diagnosis of IBD can be carried out by direct fluorescent antibody (FA) staining of sectioned tissues or viral isolation from the bursa and spleen. Isolation can be made by inoculation of embryonated chicken eggs or cell cultures. Serology is also useful for diagnostic purposes. Molecular diagnostic assays using reverse-transcription polymerase chain reaction (RT-PCR) are being utilized for IBD diagnosis, as well as strain characterization.

## **Vaccination**

Vaccination programs are widely used to control IBD. Immunization of breeder flocks is done to facilitate passive transfer of immunity to chicks. Vaccination of chicks is also practiced, but to be effective, levels of maternal antibody must be low at the time of vaccination. Both attenuated and killed virus vaccines are available.