# DUCK VIRAL ENTERITIS (DUCK PLAGUE)

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<th>Animal Group(s) Affected</th>
<th>Transmission</th>
<th>Clinical Signs</th>
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<td>Ducks, geese, swan of all ages</td>
<td>Bird to bird contact or via environment; water is important for transmission. Spontaneous viral shedding by duck plague carriers, particularly during spring</td>
<td>Diarrhea, blood stained vent, cyanotic bill, inability to fly, convulsions, polydipsia, hypersensitivity to light</td>
<td>Moderate to severe</td>
<td>No effective treatment</td>
<td>Minimize exposure; vaccine for commercial flocks</td>
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**Fact Sheet compiled by:** Gwen E. Myers  
**Sheet completed on:** 21 February 2011; updated 15 August 2013  
**Fact Sheet Reviewed by:** Simone Stoute; Gary Riggs

**Susceptible animal groups:** Ducks, geese, swan - susceptibility varies greatly among waterfowl species (blue-winged teal > Canada goose > mallard, Muscovy > pintail); other aquatic birds do not become infected, with exception of two coots in Spain during an epizootic. All ages are susceptible. Juveniles may be more susceptible than adults, but in commercial waterfowl, adult breeders’ mortality may be higher than young ducks. Sometimes higher mortality reported in females than in males. Carriers can produce infected offspring, which also may shed virus.

**Causative organism:** Herpesvirus, Anatid herpesvirus 1  
**Zoonotic potential:** No

**Distribution:** North America, Europe, Asia, Africa

**Incubation period:** Bird to bird contact or via environment. Water appears important for transmission. Incubation period (exposure to death) is 3-7 days in domestic ducks, as long as 14 days in wild populations.

**Clinical signs:** Hypersensitivity to light with birds seeking cover and darkened areas, extreme thirst, droopiness, decreased egg production, bloody discharge from vent or bill, inappetence, ataxia, inability to fly, convulsions, and phallus prolapse. Birds can also have a characteristic ‘cold sore’ lesion under tongue especially during the carrier state.

Shedding: oral, cloacal, fecal, egg & from tissues and body fluids of carcasses. Spontaneous virus shedding by duck plague carriers, particularly during spring - may be related to physiological stresses of daylight duration change and onset of breeding.

**Post mortem, gross, or histologic findings:**

**Gross:**
- Buccal cavity: whitish plaques in pharynx occasionally.
- Esophagus: petechial to ecchymotic hemorrhages, necrotic/diphtheritic/cheesy membranous lesions along longitudinal folds on mucosal surface if slightly longer course, particularly caudal esophagus and common in swans.
- Proventriculus: focal mucosal hemorrhage and/or necrosis.
- Intestines: Hemorrhagic enteritis. Variable extent, from petechiation and small ulcers (e.g. in jejunum) to hemorrhagic/necrotic annular rings (ducks) or discs (‘button ulcers’) (geese, swans) in intestines (related to lymphoid tissue distribution) in ileum.
- Cloaca: mucosal hemorrhages, later necrotic/diphtheritic/caseous membranous lesions as in esophagus.
- Cardiovascular system: petechiae to paintbrush hemorrhages on surface, particularly at base and in coronary grooves (common) or in myocardium. May be particularly visible on pericardial fat.
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- Liver: Pinpoint hemorrhages (petechiae) and/or focal necrosis. May be swollen, friable, pale (copper colored).
- Thymus and bursa of Fabricius (young birds): hemorrhages, surrounding tissues edematous.

**Histologic:**
- Focal hemorrhages in most organs.
- Liver: Necrosis of hepatocytes, with hemorrhage and limited heterophil infiltration. Occasional areas of caseous necrosis with surrounding coagulation necrosis are observed.
- Gastrointestinal tract: Necrosis of epithelial cells sloughed into lumen that have been raised from surface by hemorrhage.
- Large eosinophilic intranuclear inclusion bodies may be found in: hepatocytes, bile duct epithelial cells, epithelial cells of esophagus, intestine, bursa of Fabricius, pancreatic cells and Hassall’s corpuscles.

**Diagnosis:** Generally a post-mortem diagnosis. Viral isolation, mortality and lesions following animal sub-inoculation, serum neutralization, ID of a herpesvirus using EM, microscopic confirmation of viral intranuclear inclusion bodies in tissue cells and PCR.

**Material required for laboratory analysis:** Tissue samples; liver, lung, spleen, kidney, cloacal swabs.

**Relevant diagnostic laboratories:**
State Animal Disease Diagnostic laboratories

Texas Veterinary Medical Diagnostic Lab  
College Station Laboratory  
P.O. Box Drawer 3040  
College Station, Texas 77841-3040  
(979) 845-3414  

**Treatment:** No successful treatment.

**Prevention and control:** Prevention aimed at minimizing exposure of the population-at-risk; depopulation, removal of birds from the infected environment, sanitation, and disinfection. Avirulent, live-virus vaccine developed for domestic white Pekin ducks but it is not reliable in protecting other species.

**Suggested disinfectant for housing facilities:** Virus is hardy, survives for weeks in ideal environmental conditions. Phenolic based disinfectants, Chlorine bleach; water may be decontaminated by chlorination (3ppm). Scrub concrete ponds with hypochlorite (5.25% solution).

**Notification:** Reportable to State Veterinarian and USDA-APHIS-VS involvement

**Measures required under the Animal Disease Surveillance Plan:** No known requirements as this is reportable for tracking/surveillance.

**Measures required for introducing animals to infected animal:** Not recommended - infected animals should be isolated or culled.

**Conditions for restoring disease-free status after an outbreak:** Quarantine, depopulate, clean and disinfect environment for captive flocks.

**Experts who may be consulted:**
Simone Stoute, DVM, PhD, DACPV  
Director, Cornell University Duck Research Laboratory  
Department of Population Medicine and Diagnostic Sciences  
College of Veterinary Medicine  
Cornell University  
P.O. Box 217  
Eastport, NY 11941  
631-325-0600  
sts66@cornell.edu
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