

BASICS

Avian avulaviruses (AAvV), a genus within the Paramyxoviridae family, are a group of RNA viruses that are reported worldwide in a variety of avian species.

In North American wildlife, avian avulavirus-1 (AAvV-1) is most typically seen in doublecrested **CORMORANTS**.

A variant of AAvV-1 is found in **PIGEONS** and **DOVES** and referred to as Pigeon Paramyxovirus.

TRANSMISSION occurs primarily from direct contact, respiratory secretions, or through a contaminated environment.

CLINICAL SIGNS are variable. Birds may be asymptomatic, die acutely, or have prolonged disease. Typical signs include: weight loss, sneezing, nasal discharge, labored breathing, yellow-green diarrhea, stumbling, and head bobbing.

Domestic poultry can be infected by AAvV-1, which is referred to as Newcastle disease. Flocks are often depopulated after a detection to curb spread. Newcastle disease is one of the most economically important poultry diseases.

Avian avulavirus can be **DIAGNOSED** by isolating virus from swabs (oropharyngeal and/or cloacal), serology, or PCR testing.

There is **NO TREATMENT** for AAvV infection, only supportive care.

ZONONOSES Some strains may cause a temporary conjunctivitis (pinkeye) and flu-like symptoms in people after a considerable exposure event.



**REPORTABLE
DISEASE**

**DIRECT
CONTACT**

**AVIAN
SPECIES**



DETAILS

Avian avulaviruses (AAvV) are a genus within the Paramyxoviridae family and were previously known as avian paramyxoviruses (APMV).

There are 20 known serotypes of avian avulaviruses (AAvV-1 to AAvV-20). Within AAvV-1, there are two classes (I and II), each with multiple genotypes. Most class I viruses are avirulent in poultry and asymptomatic in waterfowl and shorebirds. The principal determinant of virulence for these viruses is at the fusion protein cleavage site, which enables entry of the virus into host cells.

The most common wildlife species affected by avian avulaviruses are double-crested cormorants, doves, and pigeons. The AAvV-1 strains circulating in these populations are often adapted to the particular species. In cormorants, AAvV-1 can be virulent and cause mass mortality events, which have been seen in multiple sites across the US and Canada, most often in summer nesting colonies. These outbreaks primarily affect nestlings and fledglings and can affect more than 90% of the colony.

Pigeon paramyxovirus (AAvV-1, class II, genotype VI) is seen in various species of pigeons and doves (Columbids). In the US, outbreaks first began in introduced Eurasian collared doves in Florida in 2001 and have continued in western states.

In domestic poultry, infection with virulent AAvV-1 is called Newcastle Disease, a reportable disease.

AAvV serotypes 2-7 can cause clinical disease in a variety of species. AAvV-2 has been isolated from wild birds, mainly passerines, and caged psittacine species, but does not cause the significant die-off events in wild birds that are seen with AAvV-1.

TRANSMISSION Avian paramyxoviruses can spread in multiple ways: through exhaled air, saliva, nasal secretions, feces, and sometimes even through eggs laid by infected birds. Virus is shed during almost every stage of infection, including recovery. The virus can survive in the environment for months, but is inactivated by heat and direct sunlight.

High density nesting colonies and poultry operations are especially susceptible because of close contact between animals. Most species-adapted AAvV-1 strains do not

affect poultry. Virulent strains in poultry can cause outbreaks of severe disease with significant economic impacts.

CLINICAL SIGNS Infections can range from being harmless to rapidly fatal. Severity of infection depends on virus strain and host species, age, and immune status. Neurological signs including weakness, partial or complete paralysis of wings or legs, head twisting or torticollis, incoordination, and tremors are most often seen.

In domestic poultry, clinical signs of AAvV-1 infection range from asymptomatic to severe, sudden death, depending on the virulence of the virus strain involved. Infection typically results in respiratory illness, but diarrhea, nervous system signs, decreased egg production, and depression are also common.

If suspected, infection with AAvV-1 should be reported to appropriate federal and state authorities.

DIAGNOSIS AAvV can be formally diagnosed by isolating virus or RNA from swabs (oropharyngeal and/or cloacal) and serology coupled with identifying clinical signs. Strain identification is confirmed by PCR.

PRECAUTIONS AND PREVENTION Poultry houses should be bird-proofed to prevent interaction with wild birds, along with good biosecurity practices. Vaccination of domestic poultry is an option to lessen the severity of infection, but it does not grant complete immunity.

American mourning dove

