

Paramyxovirus



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BASICS

Paramyxoviruses (PMV) are a group of RNA viruses that cause acute respiratory disease. There are 12 recognized serotypes of avian paramyxoviruses (PMV-1 to PMV-12).

In wildlife, paramyxovirus is most typically seen in **CORMORANTS AND GULLS** and there is a variant of in pigeons that is usually referred to as Pigeon Paramyxovirus.

CLINICAL SIGNS depend on which strain has infected which species. Birds may die acutely or have prolonged disease. Typical signs may include: weight loss, sneezing, nasal discharge, labored breathing, yellow-green diarrhea, stumbling, and head bobbing.

In **PROLONGED CASES**, wing and leg paralysis, jerky movements, and dilated pupils also may be seen. Lesions seem to affect the liver, spleen, and respiratory system the most.

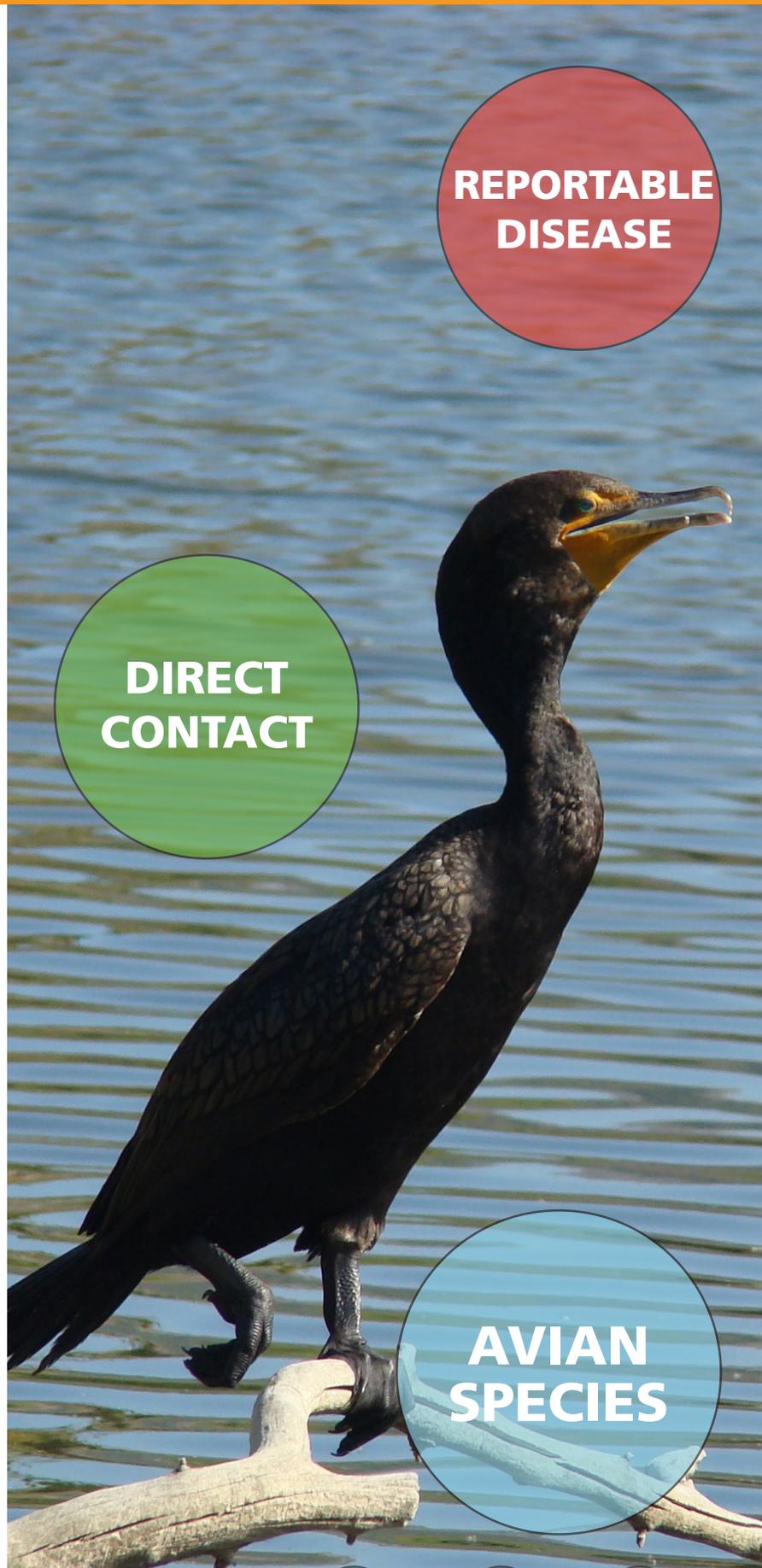
TRANSMISSION occurs primarily from direct contact with feces, respiratory secretions or through a contaminated environment. Poultry populations are especially susceptible to infections when in close contact with other birds commonly infected like cormorants, pigeons, and imported psittacine species.

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

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

ZONUSES

Some strains can potentially cause a temporary conjunctivitis and flu-like symptoms in people. However, this is mostly limited to lab workers and vaccination teams that expose themselves to very large quantities of the virus.



REPORTABLE
DISEASE

DIRECT
CONTACT

AVIAN
SPECIES

DETAILS

There are 12 recognized serotypes of avian paramyxoviruses (PMV-1 to PMV-12), and they are all single stranded RNA viruses. A severe strain of PMV-1 (also called Virulent Newcastle Disease Virus or vNDV), can cause high mortality when it is transmitted to domestic poultry and is a reportable disease. It is occasionally seen in the US. The most common wildlife species affected by paramyxoviruses are pigeons and cormorants, and species adapted PMV-1 strains routinely circulate in those populations but do not always impact poultry.

PMV-2 has been isolated from wild birds, mainly passerines, and caged psittacine species.

TRANSMISSION Poultry populations are especially susceptible when in close contact with other birds commonly infected like cormorants, pigeons, and imported psittacine species.

Paramyxoviruses can spread in multiple ways: through exhaled air, respiratory discharges, excrement, and even sometimes through eggs laid by sick birds. Virus is shed during almost every stage of infection, including when an individual is recovering. In addition, the virus can survive for months in the environment and has a wide tolerance range for both pH and temperature; this makes it very easy for wild birds to become infected even without the immediate presence of an infected individual.

For PMV-2, infections in poultry are also thought to originate through contact with wild birds, but the mechanics of transmission between wild or domestic birds are unclear.

CLINICAL SIGNS Infections can range from being rapidly fatal to absolutely harmless. The severity of the infection depends on what strain it is, and the species, age, and immune status of the potential host.

Disease presents itself typically as a respiratory illness, but diarrhea, nervous system signs, and depression are also common clinical signs. Some birds may not appear to be sick and die suddenly. While most of this knowledge comes from research done on poultry populations, many of the same clinical signs are seen in wild birds. Nervous system signs in conjunction with diarrhea are typical in pigeons,

and nervous signs are frequently seen in cormorants and exotic bird species.

PMV-2 causes very serious disease in psittacines, but only mildly affects passerines. Clinical signs in psittacines include inflammation of the trachea and intestines, as well as pneumonia.

TREATMENT If suspected, vNDV must be reported to appropriate federal and state authorities. Vaccination is an option but does not grant complete immunity, only lessens the severity of infection. Only treatment of symptoms is possible while the infection runs its course.

Treatment for other paramyxovirus strain infections is supportive care.

DIAGNOSIS Paramyxovirus can be formally diagnosed by isolating virus or DNA from swabs (oropharyngeal and/or cloacal) and serology coupled with identifying clinical signs. Strain identification is confirmed by PCR. Reference laboratories use sequence analyses to detect genetic differences for comparison of strains from different outbreaks and to identify the source of those infections.

PRECAUTIONS AND PREVENTION NDV vaccines are used for chickens, turkeys, and pigeons in other parts of the world, but are prohibited in birds entering the USA as it does not prevent individuals from carrying the disease, and hampers detection of infection during outbreaks.

As many outbreaks of PMV in poultry originate from contact with wild birds, bird-proofing poultry houses and using good biosecurity practices is critical in prevention.

In terms of the risk of zoonosis, some strains can potentially cause a temporary conjunctivitis in people. There is no risk of zoonosis for PMV-2 – PMV-12.