



Pigeon Paramyxovirus (PPMV-1)

Agent

PPMV-1 is a virulent variant of Newcastle disease virus of the avian paramyxovirus type 1 (APMV-1) serotype, from the genus *Avulavirus*, belonging to the family Paramyxoviridae. APMV-1 is one of twelve avian paramyxoviruses recognised to date. The virus is stable in the environment and may remain infectious for several weeks.

Suspected infection with PPMV-1 in racing pigeons, captive pigeons and doves, as well as in poultry and game birds (where the disease is called Newcastle disease), is a notifiable disease in the UK and must be reported immediately to APHA - see 'Risks to domestic animal health' below.

PPMV-1 infection in **wild columbiformes** (pigeons and doves), including feral pigeons, is not a notifiable disease.

Species affected

The natural host species for PPMV-1 are pigeons and doves (wild and domestic). However, PPMV-1 and other APMV-1 viruses have the ability to infect other wild and captive bird species including waterfowl, birds of prey, songbirds, parrots and most notably poultry (including game birds), where the disease is called Newcastle disease if there is significant mortality.

Signs of disease

Pigeons & doves:

The incubation period can vary from 4-6 days up to 4 weeks. Clinical signs depend on factors including immune and vaccination status, exposure route and dose and the particular strain of virus involved.

The most common clinical signs include depression, green watery or bloody diarrhoea, torticollis (twisting of the head and neck), ataxia (loss of balance), limb/wing paralysis and large numbers of sudden and unexplained deaths in a naïve flock. If infected during moulting, feather development may also be affected leading to fragile or deformed feathers.

Mortality in pigeons and doves can vary depending on the strain of PPMV-1 and other factors, with rates of 10-100% recorded. Birds that survive infection can shed the virus for a number of weeks.

Poultry and game birds:

The clinical signs of **Newcastle disease** include sudden high levels of unexplained mortality, lethargic and unresponsive birds, reduced appetite and difficulty eating, head and muscle tremors, ataxia, torticollis, increased water intake (usually the first sign observed), mouth breathing, green watery faeces or diarrhoea, sudden dramatic drop in egg production and abnormal egg appearance (size, shape, texture and/or colour).

Disease transmission

PPMV-1 is known to be shed by infected birds through the respiratory and gastrointestinal tract via bodily fluids, such as saliva and through droppings.

Direct contact: birds may become infected through direct contact with bodily fluids and droppings of infected birds. In the wild, the main route of disease transmission between birds is faecal-oral (consumption of food contaminated with bird droppings).

Indirect contact: birds may also become infected through the indirect spread of virus particles through the movement of contaminated objects or people (e.g. contaminated food or water, clothing/footwear, hands, equipment such as drinkers/feeders or vehicles).

Distribution and origin

At present, PPMV-1 is known to have a widespread distribution. The virus was first identified in pigeons in the Middle East during the late 1970s, and subsequently spread into Europe, Japan, North America and South Africa throughout the 1980s.

In Europe, outbreaks of PPMV-1 began in feral pigeons in the east of the continent before spreading westwards through both captive and feral pigeons, and Eurasian collared doves (*Streptopelia decaocto*). PPMV-1 was first detected in Great Britain (GB) in 1983, when the virus spread within racing pigeons, and is still detected regularly in racing and feral pigeons and doves. Hence, PPMV-1 is now considered to be endemic (i.e. established) in wild/feral pigeons in GB.

Risk to human health

Exposure of people to the virus can occasionally result in mild conjunctivitis, which most often resolves without the need for treatment.

Risk to domestic animal health

When APMV-1 infection causes significant mortality in poultry, including game birds, the condition is called Newcastle disease, which is a notifiable avian disease in the UK. This includes infection of domestic poultry and captive birds by PPMV-1 which may have originated from infected pigeons/doves found in close proximity.

If you suspect PPMV-1 in racing pigeons, captive pigeons and doves, or Newcastle disease in poultry, game birds or other captive birds, you should report it to the Animal and Plant Health Agency (APHA) immediately using the contact details below:

- England: tel. 0300 020 0301
- Wales: tel. 0300 303 8268
- Scotland: contact local Field Services Office (<https://www.gov.uk/government/organisations/animal-and-plant-health-agency/about/access-and-opening#field-services-offices-scotland>)

For more information on Newcastle disease, please visit: <https://www.gov.uk/guidance/newcastle-disease>.

In addition to poultry and game birds, PPMV-1 may affect other species of captive birds. However, PPMV-1 poses no known risk to mammals (other than human beings – see above).

Diagnosis

Diagnosis of PPMV-1 in both pigeons and other bird species cannot be made based on clinical signs of ill health alone. Post-mortem examination and specialist laboratory testing are required to confirm the presence of the virus.

If you wish to report finding a dead **wild** bird, or signs of disease in **wild** birds, please visit www.gardenwildlifehealth.org. Alternatively, if you have further queries or have no internet access, please call the **Garden Wildlife Health** vets on **0207 449 6685**.

Treatment of wild pigeons/doves and control

Although with supportive care affected wild pigeons/doves may recover over a period of 3 to 8 weeks, treatment of affected wild birds is not recommended for several reasons:

- Birds infected with PPMV-1 continue to shed the virus throughout the treatment period, acting as a potential source of infection to other captive or wild birds, or poultry.
- Birds that recover may become carriers of PPMV-1 (i.e. they show no clinical signs, but can continue to shed virus and infect other captive or wild birds).

Because of the potential risks to poultry and game bird health, robust biosecurity measures are recommended between captive and wild birds as a routine. It is strongly advisable to avoid keeping poultry (including game birds) in the same location as pigeon or doves, especially when showing signs of ill-health.

Households with backyard poultry who feed wild birds, have dovecotes or racing pigeon lofts, should be particularly vigilant for signs of ill health in the pigeons and doves. High levels of biosecurity must be maintained at all times to avoid cross infections, for example by keeping the poultry feed and water under cover and ensuring wild pigeons and doves are not encouraged to mix with poultry.

Prevention

Commercial vaccines for Newcastle Disease are available and licensed for use in captive pigeons and poultry. They should be used in accordance with manufacturer's instructions whenever possible to avoid infection.

Biosecurity measures should involve avoiding direct contact between wild and captive birds, and indirect contact between captive birds and any potentially infectious material, such as wild bird faeces.

Scientific publications

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