

Vaccination of Pigeons for Avian Paramyxovirus (PMV1)

The document provides a summary of the issues associated with the vaccination of pigeons for avian paramyxovirus type 1 (PMV1).

Summary and Recommendations

There exists the possibility that vaccines intended for use against Newcastle disease (ND) in poultry could provide some cross-immunity to PMV1 and may help reduce the spread of disease in pigeons.

However, nothing is known about the efficacy or possible side-effects of vaccination of pigeons with Newcastle disease vaccines currently available in Victoria. There are no vaccines registered in Australia for PMV1 in pigeons, yet there is no legal impediment to their use in pigeons in Victoria.

It is recommended that owners of pigeons who consider the use of commercially available Newcastle disease vaccines to help control PMV1 in **healthy** pigeons do so **in consultation with their veterinarian, whilst maintaining high standards of biosecurity** to limit the possibility of introducing the disease into their pigeons.

PMV1 in Victoria

Since late August 2011, a paramyxovirus not previously reported in Australia has been detected in hobby pigeons on several properties in Victoria. Affected pigeon flocks have experienced high mortalities, associated with lethargy, gastrointestinal and neurological signs.

Vaccine for Newcastle Disease in Victoria

There are five monovalent ND vaccines registered in Australia for use in poultry, both live and inactivated, based on lentogenic strains of ND virus such as La Sota and V4. Such vaccine strains have been successful in controlling ND outbreaks in many parts of the world. There are no vaccines registered in Australia for PMV1 in pigeons.

Use in poultry is restricted by legislation and requires flocks in excess of 1,000 birds to be vaccinated using a permit system. Vaccination of other poultry is not permitted.

Live vaccine

Live V4 strain vaccine is available and has not been reported to have produced disease or affected egg production in vaccinating poultry flocks. Live vaccines are relatively inexpensive, have the advantage of stimulating local immunity, are easy to administer via mass medication, and are able to protect poultry soon after vaccination. Where complicating infections exist, for example respiratory, they can produce disease; for this reason, very lowly pathogenic viruses are used for initial vaccination and this, in turn, requires multiple vaccination. The efficacy of lentogenic virus vaccines depends on the ability of the vaccine virus to multiply in chickens and stimulate immunity, particularly in the face of maternal immunity. Their ability to spread from bird to bird is also important in exposing all birds to infection.

Inactivated vaccine

Inactivated La Sota strain vaccine is available, has been used where ND is endemic, and is the strain in the pigeon vaccine utilised in Europe. The cost is more than live vaccine, however the immunity developed in poultry is claimed to be stronger and more durable. Administration requires individual injection of birds which can cause stress.

Efficacy and safety of ND vaccine in pigeons against paramyxoviruses

There is no efficacy or safety data for the use in pigeons of those poultry ND vaccines currently registered in Australia.

Paramyxoviruses isolated from pigeons overseas, such as during an outbreak of disease in Europe in the 1980s, have been shown to belong to the same serotype, ie. avian PMV1, as ND viruses in poultry. Despite this close genetic relationship, there are antigenic differences between ND virus and the pigeon-specific PMV1 strains, as exists between different strains of ND virus from poultry.

When pigeon PMV1 infection first occurred in Europe in the 1980s, only existing lentogenic ND virus vaccines, based on strains such as La Sota, were available. These vaccines were used and apparently gave variable protection. Although some were too virulent for pigeons, they were used widely initially as that was all that was available at the time.

As V4 strain ND virus is a little less virulent than the other lentogenic vaccine viruses, it may well be safe and efficacious for pigeons but this is yet to be clearly established.

As ND vaccines based on lentogenic viruses are intended to provide cross protection to different PMV1 strains of PMV1 in poultry, there is no reason to expect that this would be different if such vaccines were administered to other avian species such as pigeons. This is supported by the inclusion of La Sota strain of PMV1 in the inactivated Pfizer currently registered in the UK for pigeons.

Given the absence of data on V4 strain vaccines in pigeons and that a vaccine registered in the UK for use in pigeons contains the La Sota strain, a poultry vaccine based on the same strain may be the most appropriate for use in pigeons in Australia.

Discussion

Newcastle disease vaccines available in Australia

Advantages and disadvantages of vaccinating pigeons

If poultry ND vaccines proved to be safe and efficacious in pigeons, vaccination could provide pigeon owners with an additional and convenient tool to manage the risk of PMV1 infection. Vaccination is used overseas routinely by pigeon owners for this purpose. If efficacious, vaccination is likely to prevent the development of clinical disease but not infection; this means that high levels of biosecurity would still need to be imposed by owners. Additionally, only healthy birds in healthy flocks should be vaccinated.

Use of a poultry ND vaccine is not without risks. No efficacy or safety data is available, though it may be possible to extrapolate from pigeon vaccines used overseas. If the use of vaccine in pigeons was promoted, owners of other species, such as caged birds, may also choose to vaccinate.

Manufacturer	Product Name	Active(s)	Live/Inactivated
Bioproperties	Vaxsafe ND vaccine (living)	Newcastle disease strain V4 virus	Live
MSD Australia (Intervet)	Intervet Nobilis live Newcastle vaccine V4	Newcastle disease strain v-4 virus	Live
Pfizer Animal Health	Poulvac Newcastle v4	Newcastle disease strain V4 virus	Live
MSD Australia (Intervet)	Nobilis Newcavac vaccine against Newcastle disease in poultry (no stock due in Australia until 2012)	Newcastle disease La Sota virus antigen	Inactivated
Pfizer Animal Health	Poulvac Newcastle IK vaccine (inactivated)	Inactivated Newcastle disease virus antigen (La Sota strain)	Inactivated