For your information.....A useful piece of general information on PMV1 from Dr Gordon Chalmers, Canada. In this country, if you need to seek further relevant information for the Australian situation, contact Dr Rob Marshall, Carlingford Animal Hospital.

Carlingford Animal Hospital
772 Pennant Hills Road
Carlingford, NSW 2118
Australia

02 9871 6036

02 9873 2175

robmarshall@birdhealth.com.au

The spectre of Newcastle disease in poultry operations in Australia has state and national authorities justifiably concerned. This concern also extends to racing pigeon fanciers whose racing activities have been curtailed because of these outbreaks. Because of these concerns, I thought that some information on paramyxovirus infection in pigeons, in addition to that published by Dr Marshall of NSW, might be appropriate for the Australian fancy.

Introduction. PMV infection is viral disease of domestic pigeons. The virus is classified as a paramyxovirus-1 (PMV-1). There are several other paramyxoviruses that cause disease in other species of birds. For instance, PMV-2 was recovered from chickens, PMV-3 from turkeys, PMV-4 from ducks, PMV-5 from budgerigars, PMV-6 from ducks, and PMV-7 from a dove. I have seen PMV infection in grass parakeets.

Origin. PMV infection seems to have originated in North Africa, in the countries of Sudan or Lower Egypt in 1981-82, and gradually worked its way through populations of pigeons in the Mediterranean countries, through Europe, Britain and other countries of the world, including the USA and Canada, where it spread widely.

Other Species. Newcastle disease of domestic chickens is also caused by a PMV-1 virus. It was the first paramyxovirus isolated from birds. The virus that causes disease in pigeons is a genetic variant of the virus that causes Newcastle disease in chickens -both are PMV-1 viruses.

Spread of the Disease. As a disease, PMV moves relatively slowly through a loft of pigeons. The main source of the virus in a loft is the droppings of infected birds, and the main method of spread is mechanical, that is, through racing baskets, on fanciers' shoes, etc.. From the time the virus is first introduced to a loft until the first signs of disease appear is often 5-6 days, but can be as long as several weeks, facts that can be used to advantage when suitable

vaccines are available, and their use permitted by federal/state authorities.

Signs. Early signs of the disease (2-3 days) can include watery eyes and discharge from the nostrils. However, these are uncommon signs. Even so, in this early period of time, virus is being discharged from these sites in the body.

By day 4 after exposure, the virus begins to multiply in the digestive tract, i.e., the intestines. At this time, signs of very fluid diarrhea occur. From the intestines, the virus gains access to the blood stream, which spreads the infection to the brain and other tissues. Because the kidneys are also infected, a great deal of the fluid passed by infected birds actually comes from the kidneys. In an outbreak, the loft can be awash in fluids.

The nervous signs include trembling of the head, a twisted neck, general paralysis, problems with balance (drunken appearance), problems picking up grain, etc. In some cases, there can be nervous signs without diarrhea, and diarrhea without nervous signs.

Illness in a loft can vary from 30-70% or more of the birds. Losses can vary considerably from one loft to another. Recovered birds are solidly immune and are not carriers of the infection.

Treatment. There is no treatment for this disease. Antibiotics and electrolytes may be used as supportive treatment, but they have absolutely no effect on the virus.

Prevention. Prevention of the disease over the racing world consists of vaccination with an oil-based or other killed vaccine that is injected by a syringe and a very short needle, under the skin. Before use, warm the vaccine to room temperature, to prevent shock reactions caused by the injection of cold vaccines, and shake well. One common site for injection is directly on the midline at the back of the neck about half way between the base of the skull and the shoulders. Two people are needed for this method, one to hold the bird and the other to inject.

It is very important not to inject off to the side of this line because of the array of tiny blood vessels that sweep up each side of the neck and stop short of the midline. A lot of unnecessary bleeding may occur if this happens. In spite of the best of intentions, occasionally, vaccine may be injected accidentally into a blood vessel, and the injected bird will die almost immediately, but this is rare. To avoid this possibility, some fanciers use the loose skin between the leg and the body wall where

there are no major blood vessels to injure, as another good site. This method requires only one person.

European and North American vaccines prepared from the pigeon-strain of PMV-1 are available. Important note: avoid the use of the live water-based LaSota-type vaccines used in domestic poultry as protection against Newcastle disease. They are virtually useless in protecting pigeons against PMV infection and for this reason, they are a complete waste of time and money.

In Canada, to the present time, many pigeon fanciers have used killed oil based Newcastle disease vaccines prepared for use in domestic poultry, with apparent success. However, these vaccines have not been specifically licensed for use in pigeons in Canada, so some veterinarians are justifiably cautious about recommending their use in pigeons. Any use of such vaccines is called "off label" use.

Why aren't these products licensed for use in pigeons? The reason is that it is time-consuming and expensive for producers of these vaccines to seek federal approval for their use in species such as pigeons, because of the relatively limited market that pigeons provide. So these companies avoid the research and expense of working with pigeons, and concentrate their efforts on the more financially important domestic poultry industry.

In 1997, fanciers in some cities in western Canada experienced outbreaks of PMV in their birds. In the face of these outbreaks, these fanciers vaccinated their birds with the killed oil-based Newcastle disease vaccines for use in domestic poultry. Several months later, I spoke personally to some of the fanciers involved in these outbreaks and learned that spread of the disease in their lofts came to a halt within a relatively short time after vaccination with this product, and they haven't had any more problem with PMV. Hence, my belief in vaccinating birds in the face of an outbreak. This belief is also based on the fact that PMV tends to spread relatively slowly through a flock of pigeons, a point that allows a fancier a window of opportunity to vaccinate, and save many birds in the loft.

Companies that produce vaccines specifically from the virus involved in outbreaks of PMV in pigeons, make the point that their killed vaccines produce 100% immunity in pigeons, whereas vaccines prepared for use in poultry provide only 70 to 80% immunity when they are used in pigeons. I accept their statements and can only point to the facts given in the previous paragraph.

Because the virus of Newcastle disease of chickens and the virus of PMV of pigeons are very similar, in Canada when a Newcastle-type virus such as the PMV agent of pigeons is isolated from any species of bird, federal scientists isolate the virus and inoculate it into susceptible chickens (or into developing chicken embryos). If these chickens develop a mild, hardly noticeable disease or no visible evidence of disease, the virus is considered to be a mild, or as they say, lentogenic strain of Newcastle disease. This is the most common form of disease caused by the PMV agent of pigeons when it is inoculated into chickens.

When the disease that occurs in the inoculated chickens is a little more severe, with increased signs of disease, the virus is considered to be a "medium strength" virus, and is designated as a mesogenic strain of Newcastle disease. Finally, if a very severe, deadly form of Newcastle disease develops in the inoculated chickens, in which many of these birds die, the virus is considered to be the "hottest" known strain, called a velogenic strain of Newcastle disease. Velogenic Newcastle disease is the most worrisome and feared form of Newcastle disease, and is one that causes a great deal of alarm in both the poultry industry and federal officials when it breaks out.

To date, the vast majority of the strains of PMV isolated from pigeons have been shown to be the lentogenic or the mildest strain of Newcastle disease, but some occasional isolates in Canada have been considered to be mesogenic forms of the disease. So far, to my knowledge, no PMV isolated from pigeons in Canada has produced severe, velogenic Newcastle disease when the virus is inoculated into chickens. I am also unaware of outbreaks of disease in chickens associated with the PMV of pigeons in Canada, and racing has continued unabated here for many years.

Old and young birds should be vaccinated against PMV infection (also pox and paratyphoid) a few weeks ahead of the racing season, so that birds are solidly immune well ahead of contact with birds from other lofts.

In an outbreak. What can a fancier do in the face of an outbreak in his Ioft9 The bottom line is: vaccinate. As mentioned earlier, the virus tends to spread relatively slowly through a loft of pigeons, and this fact can be used to advantage. If birds are vaccinated with an oil-based or water-based killed vaccine in the face of an outbreak (1/4 to 1/2 cc injected under the skin), there is a good chance that many of the unaffected birds in a loft will develop sufficient immunity to defeat the infection, and prevent the devastating effects of severe infection of the brain. Ideally, birds should be vaccinated a second time, four to six weeks after the first vaccination, and annually thereafter. If you are one of those who objects to vaccinating or treatments, consider this: at least consider vaccinating your valuable stockbirds which can always give you a new start if you lose your race team to the infection.

False Information. 1) rumors have been circulated from time to time, to the effect that PMV vaccines in pigeons will cause infertility. Several years ago, experiments in Germany, where large numbers of vaccinated and unvaccinated pigeons were tested, showed that fertility was as normal in vaccinated pigeons as it was in unvaccinated birds, so there was no good basis for these rumors. People who wanted to push sales of the useless live LaSota-type eyedrop vaccines apparently started them.

2) Another false rumor is that continued vaccination over the years with PMV and other vaccines such as paratyphoid and pox, will cause a steady weakening and degeneration of the racing pigeon. This rumor is just nonsense -- witness the strong racing performances of modern pigeons that so many of us are rushing to Europe and elsewhere to buy at increasingly outrageous prices! The idea seems to be pushed by some of those who refuse to accept the reality and usefulness of vaccination.

You should be aware that birds with nervous signs don't necessarily have PMV infection. Paratyphoid infection can also cause severe nervous signs. Also poisoning with an overdose of Emtryl can also cause severe nervous signs. If you are in doubt about the disease or condition you are dealing with, take typically affected birds to a veterinary practitioner or diagnostic laboratory for examination.In closing, I should say that I am aware that the situation in Australia with respect to Newcastle disease in poultry is of great concern to many people, and I have no wish to

"throw the fat into the fire", so to speak. I have prepared the foregoing material with these concerns in mind, and with no wish to add to these concerns, but merely to inform. I also felt that if Australian authorities ever allow the vaccination of pigeons, fanciers might be better prepared with information based on the North American experience with this disease. Much luck!

By: DVM Gordon Chalmers