

Post-Vaccinal Distemper in Puppies and Vanguard Plus 5

Reported Cases of Post-Vaccinal Canine Distemper in Puppies

A very small number of reports have recently been received by New Zealand Food Safety (NZFS) confirming the occurrence of vaccine-associated canine distemper in New Zealand puppies following vaccination with Vanguard Plus 5 (ACVM Registration Number A007448). There have been no similar reports received for older dogs after vaccination. This is new information regarding this vaccine that was not known at the time the product was originally registered.

In April 2024, NZFS received a report of a puppy presenting to a veterinarian with clinical signs consistent with distemper after a litter of four were vaccinated with Vanguard Plus 5 eight days earlier. The puppy was euthanised the next day after its condition progressed. A second puppy from the same litter developed clinical signs on the second day and was also euthanised. Post-mortem examination confirmed the presence of encephalitis consistent with distemper, and polymerase chain reaction (PCR) testing confirmed the presence of only the canine distemper virus (CDV) strain present in Vanguard Plus 5. Immunohistochemical (IHC) staining results are still pending for this case.

In 2022, NZFS received a total five reports of distemper in puppies that had been vaccinated with Vanguard Plus 5 days to weeks before presenting with clinical signs of disease. Some of the pups initially presented with non-specific signs of ill health including lethargy, pyrexia, vomiting, diarrhoea and/or respiratory distress with some presenting with neurological signs immediately or developing over time. None of the pups were described as having hyperkeratosis of the nose and foot pads typical of natural infection. All affected puppies were euthanised, with post-mortem examination and testing confirming encephalitis consistent with distemper and the presence of CDV. Genome sequencing performed on virus recovered from two of the five puppies detected only the CDV strain present in the Vanguard Plus 5, with insufficient samples available to test this in the remaining three pups.

There are four other canine vaccines registered in New Zealand, which contain different CDV antigens to Vanguard Plus 5. These are Nobivac DHP (ACVM Reg. No. A005526), Nobivac Puppy DP (ACVM Reg. No. A006018), Nobivac DHPPI (ACVM Reg. No. A006257), and Canigen DH_{A2}PPI (ACVM Reg. No. A007374).

What is Canine Distemper?

Canine distemper is a highly contagious and potentially fatal disease of dogs. Once a dog is infected, the virus spreads rapidly within the animal and weakens the immune system. The clinical signs of distemper usually include:

- Pyrexia
- Lethargy and inappetence
- Respiratory signs, including nasal discharge and pneumonia
- Gastrointestinal (GI) signs, including vomiting and diarrhoea
- Neurological signs, including muscle twitching, circling, proprioception abnormalities, and seizures resulting from encephalitis

- Hyperkeratosis of the nose and foot pads, following natural infection

Distemper is diagnosed by evaluation of the clinical signs and PCR testing to confirm the presence of CDV. Post-mortem confirmation is done to confirm the presence of encephalitis and IHC staining of formalin-fixed tissues to recover CDV. IHC is considered to be a sensitive and specific method of demonstrating viral antigen in tissue, and consequently definitive confirmation of the cause of disease.

All cases of canine distemper are significant to New Zealand. This is because CDV is considered likely to be absent from New Zealand, due to extensive vaccination, while the virus is widespread around the world. This has led to canine distemper being made a notifiable disease under the Biosecurity Act 1993, which means that any suspected cases of distemper must be reported to the Ministry for Primary Industries (MPI). Its status as a notifiable disease also means every case of distemper is investigated thoroughly to determine the source of infection, placing New Zealand in a unique position to distinguish vaccine-associated distemper from cases caused by “wild” virus.

All multivalent canine vaccines registered for use in New Zealand contain an attenuated strain of distemper virus in addition to parvovirus +/- adenovirus +/- parainfluenza virus. NZFS have received no reports of vaccine-associated canine distemper for any vaccine other than Vanguard Plus 5.

What should veterinarians do?

This alert is being provided to ensure veterinarians can make informed decisions regarding the choice of vaccine to use in their patients because vaccination remains an important component of managing canine health in New Zealand. Vaccination against distemper is credited with creating the current non-endemic status of the disease in New Zealand, and provides important protection for dogs against parvovirus, which is endemic, and infectious canine hepatitis, which continues to be sporadically diagnosed.

Veterinarians are reminded to remain vigilant for any potential cases of distemper. If you suspect your patient may be showing signs of distemper, contact MPI on 0800 80 99 66. Additional information regarding notifiable disease notification can be accessed [online](#).

Veterinarians are also reminded of the importance of reporting all adverse events to the registrant of the product and/or directly to NZFS. Adverse event reporting is vital to identifying issues associated with veterinary medicine use, and NZFS's ability to prevent future events from occurring. Information on the adverse event reporting programme, including how to report an adverse event, can be found [here](#).

What are the next steps?

MPI is continuing to investigate these cases and working with Zoetis New Zealand on its investigations to fully elucidate the circumstances surrounding the development of vaccine-associated distemper in these cases. NZFS is also reviewing the conditions of Vanguard Plus 5's registration to determine if any changes are required. NZFS will update this alert with any additional relevant information as soon as it is available.

NZFS will continue to keep the veterinary sector informed on progress as more information becomes available. For questions arising in the meantime, please contact New Zealand Food Safety at approvals@mpi.govt.nz.

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