

Canine and Feline Vaccine Questions: Do We Have the Answers?

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There are many important questions regarding canine and feline vaccines. The answers to these questions may not be available in the literature, or they may be difficult to find, and are thus not widely known. Some of the questions that will be discussed in this presentation are frequently asked by practitioners, and answers provided are based on studies done in my laboratory as well as from information in the literature and/or presented at scientific meetings. This presentation will serve as the basis for the question and answer roundtable that will follow.

Q: Do the current MLV (modified live virus) and recombinant canine distemper vaccines provide protection against the isolates/strains/variants of canine distemper virus (CDV) that infect US domestic and wild species? A: Yes. There have been no controlled studies in which CDV vaccinated animals, regardless of the vaccine used (MLV or recombinant), have developed disease, regardless of the isolate used for challenge! My laboratory has looked at long term immunity using several different isolates to challenge dogs vaccinated four or more years earlier with MLV or recombinant (r) CDV vaccines. Furthermore, there is little or no well-documented evidence for CDV vaccination failure in the field.

Q: Are there dogs that, when properly vaccinated with CDV vaccines, fail to develop immunity? A: Yes, we estimate approximately 1 in 5,000 dogs are non-responders to CDV vaccines, thus remain susceptible to infection/disease. However, the most common cause of vaccination failure for CDV and CPV-2 is infection at a young age prior to immunity or where the last vaccine was given and maternally derived antibody blocked active immunization.

Q: Can MLV CDV vaccines cause disease in certain dogs or other species? A: Yes, disease rarely occurs in dogs but MLV CDV vaccines continue to cause post-vaccinal encephalitis. In other species, like the black-footed ferret or domestic ferret, some of the current MLV vaccines should not be used because they can cause severe disease and death. It has been shown that as few as 5 to 10 back passages of MLV CDV vaccines in dogs can restore full virulence to the vaccine virus. We have also demonstrated that vaccinated dogs that were immunosuppressed (antilymphocyte serum, irradiation, azathioprine) developed CDV.

Q: Do MLV Canine Parvovirus-2 (CPV-2), CPV-2a, and/or CPV-2b vaccines provide protection against CPV-2 and all of the current variants (CPV-2a, 2b, and 2c)? A: Yes. Studies we have presented and/or published show excellent short and long term protection from disease. However, not all the vaccines provide sterile immunity in all dogs, thus challenge virus may be shed in feces for short periods of time after experimental challenge. However, using antigen capture ELISA to detect virus in feces, we have found shedding to be a rare occurrence.

Q: Do vaccines containing the same variant (eg CPV-2b) provide more complete protection when CPV-2b is used to challenge the dogs than vaccines containing CPV-2 or CPV-2a? A: No, we find some CPV-2 vaccines provide better protection than certain CPV-2b vaccines, in that they immunize at an earlier age (higher MDA titer) and they completely prevent infection (sterile immunity).

Q: What type of CPV-2 and FPV vaccines provides the least protection? A: Killed (inactivated) CPV-2 and FPV vaccines, since it takes multiple doses and a long period of time to induce protective immunity. Killed canine or feline parvovirus vaccines are generally not recommended!

Q: Are there dogs vaccinated properly with current MLV canine parvovirus vaccines that fail to develop immunity? A: Yes. We calculate about 1 in 1,000 dogs cannot develop

an antibody response and are susceptible to infection and disease when challenged experimentally or naturally. This number is higher for certain breeds and families of dogs, because it is likely a genetic unresponsiveness.

Q: Do the current core vaccines (CDV, CPV-2, FPV, Canine Adenovirus-1/CAV-2) provide a long duration of immunity (DOI)? A: Yes, at least 7 to 9 years and most likely a lifetime, based on many serologic and challenge studies. These studies include the MLV core vaccines from all the major veterinary biological companies and we now have a minimum DOI study showing at least 5 years for recombinant CDV!

Q: Are we administering the killed rabies vaccines correctly? A: No, we are not! I believe we can enhance the efficacy and the DOI if we give two doses of killed rabies 3-4 weeks apart, similar to how we administer almost all other killed vaccines! We published our above recommendation in 1977!

Q: Do the current feline leukemia virus vaccines prevent infection, and how often do they need to be administered? A: Current FeLV vaccines do not prevent infection – instead, they are designed to prevent the development of persistent viremia (PV) and most, but not all, do that very well! Two doses of K FeLV or recombinant FeLV vaccines given 3 to 4 weeks apart are required to provide protection from PV. One dose provides no significant protection! Based on our studies and field observation, I believe one dose of the FeLV vaccine at 8 to 10 weeks, another at 11 to 14 weeks, and then a third at one year of age will provide many years (minimum DOI 3 years and most likely lifelong immunity) from development of persistent viremia.

Q: What is the shortest period of time it takes for the current canine and feline MLV or recombinant core vaccines when administered in the absence of MDA to provide protection from clinical disease (experimental or natural challenge)? A: CDV – less than 1 day, CPV-2 and FPV – 3 days, CAV-1, FHV and FCV – 7days.

Based on studies in the literature, information presented at meetings, and clinical observations, as well as many experimental studies we have performed during the past 35 years, we believe the answers given above to these important questions are correct. However, not everyone may agree with all our answers, and many are not aware of the results of certain studies we and others have performed but not published. To make this information more available we are in the process of getting many of those studies, some done as early as the 1970's, written and published!

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