



GPCA Health Committee



GPCA Health Committee - 2008

What everyone needs to Know about Canine Vaccines And Vaccination Programs

Summarized from presentation by Dr. Ron Schultz, Ph.D.
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The three most important things to give a puppy are training, love, and vaccines.

The past few years have seen a change in veterinary medicine's philosophy of vaccinations. Until recently, the predominant view was that every pet should receive every licensed vaccine multiple times at an early age, then at least annually through adulthood. Most vaccines were / are combined in a single syringe for the owner's convenience, "not to worry about the animal itself being blown out of the water with 12-way, 14-way mombo combos". Practitioners assumed that even a vaccine that did not help would not hurt, and, to this day, the labels on all USDA-approved vaccines specify annual boosters, regardless of the immunity they actually provide.

The oldest and most common vaccine is the modified live (MLV). It is made by taking a disease-causing virus and altering, or attenuating, it to a non-disease-causing virus that is still capable of immunizing. MLV is highly effective and generally very safe for the species for which it was developed.

The second most common form of vaccine is the so-called noninfectious variety. Inactivated or killed vaccines are this type. Treating a disease-causing virus with a chemical or radiation causes them to be killed. The organism should retain its important antigens, and, its ability to induce an immune response.

A newer vaccine, Vector vaccine (VV) is similar to MLV, but produced by genetic engineering that usually incorporates DNA from more than one species of organism- recombinant DNA technology. Genetically engineered vaccines are the wave of the future, because we can better control what we do to the particular virus or bacterium and we can make a very effective vaccine.

The immune system is actually two systems in one; the innate immune system, also called natural or unspecific, is present from birth, protects against any substance, is nonspecific, and is not enhanced by prior exposure. The acquired - also known as adaptive or specific- immune system is highly specific or tailored to a specific organism, and enhanced by prior exposure. Immunologic memory allows the

immune system to remember the antigens or organisms from which it has previously been exposed. For example, following exposure to CDV, a dog's immune system remembers for a lifetime that it has been exposed to the virus. A dog's immunologic memory of CDV, canine parvovirus (CPV), and canine adenovirus (CAV) guarantees long-term immunity against these diseases similar to the long-term immunity afforded humans who have developed measles, mump, or rubella.

In general, vaccines are designed to stimulate the acquired immune system, and at times they also can enhance nonspecific immunity. This explains why dogs in a test colony vaccinated against CDV, CPV, and CAV, and isolated to prevent any chance of getting infected with these diseases (to guarantee the innate immune system does not respond), still have the antibodies 5 to 7 years later. Duration of immunity is much longer for viruses than bacteria and longer against a systemic disease than a local mucosal disease. Since CDV, CPV, and CAV are all systemic, viral diseases, the vaccine offers long-term immunity.

Historically, vaccine recommendations came from a committee of the American Veterinary Medical Association (AVMA). A group of practitioners and clinicians published the first canine recommendations in 2003, with administrative support from the American Animal Hospital Association (AAHA). The guidelines were updated in 2006 and are available at www.aahanet.org.
***For the first time, the documents lists the core vaccines- distemper, adeno, parvo, and rabies- that should be administered to every dog. The main difference in 2006 was the recommended interval. The latest guidelines call for a last dose of core vaccine at 14-16 weeks, then at one year of age, then no more often than every three years. The exception is the rabies vaccine, which must be administered every three years. Optional vaccines for conditions like leptospirosis and bordetella are only recommended if an animal is at risk, but none of them provide more than a year of immunity.

For rabies, dogs require the first dose of vaccine at 12-16 weeks, then a year later, then every three years. A handful of states still require annual revaccination for rabies, but "that is absolutely absurd. The law should be changed. There's no immunologic or public health benefit." Recent vaccine trials have shown long-term immunity of more than 7 years for distemper and parvovirus, more than 3 years with a canary pox-vectored distemper vaccine, and more than 7 years for canine adenovirus with the second-generation vaccine product. For the optional vaccines, it is critical to balance the odds of infection and disease against the risk of adverse reactions, while recognizing that treatment must be repeated annually and efficacy cannot approach the core vaccines, Leptospirosis vaccines should never be combined with treatments for viruses and should never be administered before 12 weeks of age, because of the more immediate need for viral immunity and the impact of the leptospirosis treatment on a puppy's immune system.

Similarly, practitioners should avoid mixing viral immunizations with the vaccine for bordetella bronchiseptica. The treatments should be administered on opposite sides of the animal, so that they affect different lymph nodes. AAHA specialists recommend against vaccinating for canine coronavirus or giardia, If coronavirus eventually emerges as a significant canine disease most of the available countermeasures will not work since killed vaccines do not induce mucosal immunity.

The issue of antibody titers has generated a great deal of confusion. Titrers are often seen as a snapshot in time, but "what I want to tell you is that it doesn't matter with regard to distemper, parvovirus, and adenovirus, If there is any antibody that has been actively produced as a result of natural or artificial immunity, then the animal has immunologic memory and is immune". Although adverse reactions are rare they are bound to happen. Anaphylaxis is a much more common adverse reaction. Other adverse reactions are: hives and facial edema, arthritis and polyarthritis, autoimmune hemolytic anemia, post vaccination encephalitis or polyneuritis, seizures, abortion, congenital anomalies,

embryonic or fetal death, failure to conceive, and transient immune suppression- in 5 to 7 days following a combined vaccination for distemper and adenovirus.

Q & A:

1. Should a 15-month-old puppy be immunized for leptospirosis along with its third dose of core vaccines?

Recommendation is to administer the viral vaccines separately, following with the four-way leptospirosis vaccine at 17 and 20 weeks, then revaccinating 6 and 12 months later. If at very high risk for leptospirosis, it should receive boosters every 9 to 12 months.

2. Mixed messages regarding titers have led to confusion for breeders and veterinarians -can it be clarified?

It is important to test a puppy 2 weeks after it's last dose of core vaccine, rather than waiting until it reaches 1 year of age. For veterinarians in search of a practice management tool to ensure client compliance, "do titers. Do not vaccinate. I have never seen an animal harmed from taking a blood sample. I have seen harm brought to animals by giving them vaccines that they do not need. With immunization as a management tool, we have gotten the client to come in annually or more often, because everyone knew these vaccinations had to be given annually. We don't want to take away the annual visit, because it's critically important, So maybe the titer or the dental exam will do that."

3. Should bitches be vaccinated prior to breeding?

Revaccination is not generally needed. If it is, it should take place prior to estrus.

4. Can core vaccines lead to a high incidence of autoimmune disease in specific breeds?

Vaccine may trigger autoimmune disease, but they do not cause it. If dogs do not receive their core vaccines, they won't go on to develop thyroiditis, they'll die from distemper or parvo. Rabies vaccine can be the most immunologically devastating for dogs & most likely to cause an adverse reaction -and the reason is that it's a killed adjuvant vaccine.

5. Will the vaccine used for giardia be successful in eliminating the problem from a kennel?

The treatment is not needed for the majority of dogs, but it makes sense in chronic cases where the benefit can be demonstrated.

MINIMUM DURATION OF IMMUNITY FOR CANINE VACCINES:

CDV (distemper) 3 -15 years ** use challenge/ serology to determine immunity

CAV-2 (adenovirus) 7 -9 years ** use challenge /serology to determine immunity

CPV-2 (Parvovirus) 7 -10 years ** use challenge / serology to determine immunity

Canine rabies 3-5 years ** challenge / serology to determine immunity

You should feel confident that adopting a three-year vaccination program for CDV, CAV, and CPV-2 would not increase the risk for disease caused by these three viruses. FMI: www.aaha.net.org

Source: Dr. Ron Schutlz, Ph.D.

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Summary AAHA Immunization Guidelines

CORE Vaccines:

CPV-2 (Parvo) MLV: Puppies: 3 doses; age 6-16 weeks at intervals of 3-4 weeks; final dose 14-16 weeks of age; revaccinate at 1 year with booster; then every 3 years or longer. (E.g., 6 -10-14 weeks or 8-12-16 weeks).

Adults: 2 doses; 3-4 weeks apart; 1 year booster; then every 3 years or longer

CDV (distemper) MLV: as above

CAV-2 (adenovirus) MLV: as above

Rabies: give at age 12-16 weeks; then every 3 years.

CPV-2 -killed- NOT recommended; susceptible to maternal antibodies

CAV-2 -killed - “ “ “ “ “

CDV- killed - “ “ “ “ “

D-MV (measles) MLV: one dose between 4 to 12weeks of age- ONLY

Never after 12 weeks of age

NON-CORE Vaccines:

CPIV (Parainfluenza): Puppies age 6 -8 weeks, 1 dose, then every 3-4 weeks until 12-14 weeks.

Adult -one dose, then annual booster (every 3 years is considered protective).

Bordetella: Puppies age 6-8 weeks; 2 doses 4 weeks apart, then annual booster:

Adult 2 doses, 2-4 weeks apart.

Leptosporosis: Puppies 1 dose @ 12 weeks; then 2 doses 4 weeks apart; annual booster.

**Not under 12 weeks of age **

Adults; 2 doses 2-4 weeks apart.

Corona Virus: NOT recommended

Giardia: NOT recommended

Source: American Veterinary Medical Association website

~~ The GPCA Health Committee recognizes that there may be other information regarding vaccinations, which draw different conclusions from those reprinted here. We are providing this summary as generally accepted information on vaccines. We recommend all owners educate themselves on the subject of vaccines and to consult with their veterinarian. ~~