

## VACCINE INFORMATION – CANINE

**CANINE CORE VACCINES** are recommended for all pets. The diseases they protect against have significant morbidity and mortality and are widely distributed, and in general, vaccination results in relatively good protection from disease.

Canine Parvovirus (CPV), Canine Distemper Virus (CDV), Canine Adenovirus (CAV), and Rabies Virus.

**CANINE NON-CORE VACCINES** are optional vaccines that should be considered in light of the exposure risk of the animal, ie. based on geographic distribution and the lifestyle of the pet. Vaccination with these vaccines is generally less effective in protecting against disease than vaccination with the core vaccines.

Canine Parainfluenza Virus (CPIV), *Bordetella bronchiseptica*, *Leptospira spp.*, and *Borrelia burgdorferi*.

### Parainfluenza Virus Vaccine

This virus causes a mild respiratory tract infection, but is often associated with other respiratory tract viruses. In combination these viruses are usually transmitted by contact with the nasal secretions of infected dogs. The vaccine against this disease is combined with other vaccines to offer broader protection and is safe.

### Bordetella bronchiseptica Vaccine

Intranasal and parenteral vaccines are available and are recommended only for dogs expected to board, be shown, or to enter a kennel situation within 6 months of the time of vaccination. Most boarding kennels require that this vaccine be given within 6 months of boarding; the vaccine should be administered at least one week prior to the anticipated boarding date for maximum effect.

### Canine Leptospira Vaccines

Multiple leptospiral serovars (subtypes) are capable of causing disease in dogs, and minimal cross-protection is induced by each serovar. Current vaccines do not contain all serovars, the efficacy against infection with each targeted serovar is only 50 - 75%, and the duration of immunity is only thought to be about 1 year. However, leptospirosis is not uncommon in Texas dogs exposed to livestock and areas frequented by wild mammals. The disease can be fatal and has the potential to be transmitted to people, and an increase in the number of cases has been reported in recent years. For these reasons, we suggest annual vaccination of those dogs living in or visiting rural areas, especially the areas frequented by livestock or wildlife.

In general, leptospiral vaccines have been associated with more severe post-vaccinal reactions (acute anaphylaxis) than other vaccines. Whether the recent introduction of vaccines with reduced amounts of foreign protein has reduced this problem is still unclear. Anecdotally, the incidence of reactions has been greatest in puppies (< 12 weeks of age, and especially < 9 weeks of age) and small-breed dogs. Vaccination of dogs in suburban areas with minimal exposure to farm animals or forested areas is not recommended. A careful risk-benefit analysis is recommended before considering vaccination of small breed dogs at risk of exposure to leptospires.

### Canine Borrelia burgdorferi (Lyme) Vaccine

The incidence of Lyme disease in Texas is currently considered extremely low. Furthermore, use of the vaccine even in endemic areas (such as the east coast of the US) has been controversial because of anecdotal reports of vaccine-associated adverse events. Most infected dogs show no clinical signs, and the majority of dogs contracting Lyme disease respond to treatment with antimicrobials. Furthermore, prophylaxis may be effectively achieved by preventing exposure to the tick vector. If travel to endemic areas (ie the east coast) is anticipated, vaccination might be considered. All Caring Animal Clinic does not stock the Lyme vaccine or recommend it for use in dogs residing solely in Texas.

**CANINE NOT GENERALLY RECOMMENDED VACCINES** are usually not recommended because the diseases involved are either of little clinical significance or respond readily to treatment, the evidence for efficacy of these vaccines is minimal, or they may produce adverse events with limited benefit.

Canine Coronavirus, *Giardia* spp., Canine Adenovirus-1, and Rattlesnake envenomation.

#### Canine Coronavirus Vaccine

Infection with canine coronavirus alone has been associated with mild disease only, and only in dogs under 8 weeks of age. It has not been possible to reproduce the infection experimentally, unless immunosuppressive doses of glucocorticoids are administered. Serum antibodies do not correlate with resistance to infection, and duration of immunity is unknown. Vaccination against CPV protects puppies against challenge with both CCV and CPV. Therefore, All Caring Animal Clinic does not routinely recommend vaccination of puppies over 8 weeks of age against CCV.

#### Canine *Giardia* spp. Vaccine

Around 90% of dogs respond to treatment for *Giardia* infection, most infected dogs are asymptomatic, and the disease is not usually life-threatening. The vaccine does not prevent infection but may reduce shedding and clinical signs. The zoonotic potential of *Giardia* remains unclear. Based on existing evidence, All Caring Animal Clinic does not currently recommend routine vaccination of dogs for *Giardia* spp, and the vaccine is not stocked in our pharmacy.

#### Canine Adenovirus-1

We do not recommend vaccination with CAV-1 vaccines, since vaccination with CAV-2 results in immunity to CAV-1, and the use of CAV-2 vaccines results in less frequent adverse events.

#### Canine Rattlesnake Vaccine

The canine rattlesnake vaccine comprises venom components from *Crotalus atrox* (western diamondback). Rattlesnake vaccine may be potentially useful for dogs that frequently encounter rattlesnakes. Although scientific data has not been provided to document its efficacy, anecdotal reports indicate that use of the vaccine significantly increases a dog's chance of surviving an envenomation. Dogs develop neutralizing antibody titers to *C. atrox* venom, and may also develop antibody titers to components of other rattlesnake venoms, but research in this area is ongoing. Owners of vaccinated dogs must still seek veterinary care immediately in the event of a bite, because 1) the type of snake is often unknown; 2) antibody titers may be overwhelmed in the face of severe envenomation, and 3) an individual dog may lack sufficient protection depending on its response to the vaccine and the time elapsed since vaccination. According to the manufacturer, to date, rare vaccinated dogs have died following a bite when there were substantial delays (12-24 hours) in seeking treatment. Recommendations for booster vaccination are still under development, but it appears that adequate titers do not persist beyond one year after vaccination. Adverse reactions appear to be low and consistent with those resulting from vaccination with other products available on the market.

#### Serum Titers vs Vaccination

Despite the occasional risks associated with vaccination, it is widely accepted that vaccination plays an important role in protecting pets. However, some owners may wish not to have their pet vaccinated. For some vaccines, blood samples can provide evidence of immunity and may indicate that vaccination is not needed. At this time, not all laboratories are standardized to allow accurate interpretation of results, nor can immunity to all diseases be tested this way.

## CANINE VACCINATION GUIDELINES

The **All Caring Animal Clinic** vaccination guidelines have been based on recently published studies and recommendations made by task forces (including the AAAP/AFM Advisory Panel on Feline Vaccines, AAHA Canine Vaccine Task Force, and the AVMA Council on Biologic and Therapeutic Agents), which include representatives from academia, private practices, governmental regulatory bodies, and industry. These groups have evaluated the benefits versus risks of the vaccines currently available on the market. These are only general guidelines, as the vaccine types recommended and the frequency of vaccination vary depending on the lifestyle of the pet being vaccinated, i.e. indoor vs outdoor pets, travel plans, kennel/boarder plans, and underlying disease conditions such as immune-mediated diseases or pre-existing infections such as FIV infection. Because these factors may change over time, we recommend the vaccination plan for each individual pet be decided by the owner at routine annual examinations, following a discussion between the veterinarian and the client regarding the animal's lifestyle in the year ahead.

- All puppies under 16 weeks of age will receive a series of vaccinations starting at 6-8 weeks of age and continuing at 3-week intervals until the animal is 16 weeks of age.
- Puppies will receive the modified live combination vaccine containing canine distemper (CDV), canine adenovirus-2 (CAV-2), canine parainfluenza (CPIV) and canine parvovirus (CPV-2). The immunity produced by the Parainfluenza virus vaccine (CPIV) is shorter than that of CDV and the actual disease is usually not life threatening. However, since it is easily included in the Distemper combination vaccine and it is infrequently associated with adverse events, its use is recommended by All Caring Animal Clinic.
- All puppies will receive a rabies vaccination at 12 weeks of age (or as soon thereafter as possible) as recommended by Texas law.
- Healthy, adult dogs will receive annual boosters at one year and two years of age. Thereafter, the booster vaccinations for CDV, CAV-2, CPV-2, and rabies will be given every 3 years on an alternating basis, unless circumstances dictate otherwise, such as the use of *killed* parvovirus vaccines and *recombinant* CDV vaccines. Recombinant vaccines appear to result in less frequent adverse events, but the duration of immunity has not been accurately determined beyond 1 year. San Angelo city ordinance still requires annual vaccination for rabies and failure to comply could result in legal implications should you decide to participate in the 3-year rabies vaccination protocol.
- Due to the relatively mild disease caused by corona virus in dogs and the very infrequent outbreaks observed in this area, corona vaccine will not be routinely administered. The vaccine will be administered upon request if the reasons for the request are justified. Situations where client animals will likely be required or will request corona vaccination of their dogs include animals that are kenneled frequently, living in a kennel situation, or in frequent contact with young or stressed animals (dog shows, breeding facilities, etc.). However, there are no studies that show that use of the vaccine reduces morbidity or mortality (Mansfield 1996).
- The Leptospirosis bacterin is immunosuppressive in young dogs (12-16 weeks of age or less) and is not recommended for use in this age of puppy. The duration of immunity of this bacterin is controversial, but is believed to be 8-12 months. Thus, Leptospirosis bacterin will not be given to puppies under 16 weeks of age. For dogs that are in a relatively high-risk environment (outdoor, rural, roaming, kenneled or show dogs) we will have the vaccine available for annual use. However, the bacterin will not be routinely given to all dogs.
- Bordetella vaccine will continue to be available for use in animals that will be in high-risk environments (dogs to be kenneled, show dogs, breeding dogs, etc.) and should be given semi-annually.
- Since Lyme disease is not prevalent in this area, and controversy continues to exist about the Lyme vaccines (in efficacy, potential secondary side effects (Lyme nephritis/poly arthritis) and titer interference), the vaccine will not be routinely given. For individuals traveling to regions of the country where Lyme disease is common and who wish to afford a measure of protection against the disease, the vaccine can be administered on an annual basis. Lyme vaccine for dogs will be available for use on a case-by-case basis.