VACCINATION AND YOUR DOG

What is a vaccine?

A vaccine contains a virus, bacterium, or disease-causing organism that has been killed or modified so that it no longer causes the disease. Recent vaccines may contain genetic engineering elements derived from these causal agents.

When administered to an animal, vaccines stimulate the body's immune system to form infection-fighting cells and proteins (known as antibodies) to protect it against the disease. Although the protection provided by vaccines can be diminished by poor health or a deficient diet, most vaccinated animals resist the disease against which they have been immunized.

What diseases can vaccines protect my pet against?

Most veterinarians agree that all dogs should be vaccinated against widespread, serious, or highly contagious diseases (core vaccines). Other vaccines may also be recommended depending on the risks faced by certain dogs (optional vaccines). Although some pet owners believe that vaccines provide 100% immunity in all dogs, this is not always true. Some vaccines will protect most dogs, while others may only reduce the severity of clinical signs.

Core Vaccines for Dogs

Canine Distemper

This disease, caused by Morbillivirus (a Paramyxovirus), causes respiratory and digestive problems as well as nervous system disorders and can be fatal for about half of unvaccinated dogs. The nervous system of survivors may sustain permanent damage. The chronic form of the disease can cause hard pad disease, a chronic thickening of the paw pads, and encephalitis, an inflammation of the brain. Some dogs that contract the virus show no symptoms or present only very mild signs, but can easily infect other vulnerable dogs. Unvaccinated dogs run a 350-fold increased risk of contracting this highly contagious disease, which is transmitted through nasal and ocular secretions of infected dogs.

Infectious Canine Hepatitis

This disease is caused by a viral agent, canine adenovirus CAV-1, transmitted through the urine of infected dogs. It can cause liver failure, eye damage, and respiratory disorders, and is sometimes fatal. Common clinical signs are vomiting, abdominal pain, diarrhea, and occasionally, coughing. CAV-2, a closely related virus, is used in the manufacture of the vaccine because it causes fewer potential side effects and offers cross-protection.

Canine Parvovirus

The disease is caused by types CPV-2, CPV-2a, and CPV-2b. The infection is severe and widespread among dogs. Symptoms include severe vomiting and bloody diarrhea caused by the virus damaging the gastrointestinal system. The disease is transmitted through feces and can cause death within 48 to 72 hours following infection, although sudden death can also occur. Parvovirus can also cause bone marrow diseases and myocarditis (inflammation of the heart muscle). This virus is very resistant in the environment and is easily transported by shoes and other objects, causing the transmission of the virus.

For this reason, even dogs living in high-rise apartment buildings need to be protected. Vaccination is the most effective protection strategy for all dogs, young and old.

Canine Parainfluenza Virus

This virus is one of the main causes of a respiratory disease called kennel cough, whose common symptoms are a deep cough, nasal discharge, and occasional fever. Although the parainfluenza virus produces mild symptoms, particularly a cough, it is frequently present as a coinfection with other agents causing kennel cough.

Bordetellosis

A vaccine is available against Bordetella bronchiseptica, which contributes to kennel cough syndrome. These bacteria are one of the main causes of kennel cough, causing respiratory symptoms like coughing, nasal discharge, and fever. Severe infections can lead to pneumonia. Dogs that come into contact with other dogs in kennels, boarding facilities, shows, training classes, and other high-risk environments will benefit from vaccination against this disease. Although Bordetella is one of the primary causes of kennel cough, it is important to emphasize that several other organisms can cause similar symptoms.

Rabies

All mammals, including humans, run the risk of contracting rabies, which is almost always fatal. Infected dogs can develop the "paralytic" form, which manifests as depression, weakness, and paralysis, or the "furious" form, which is characterized by abnormal aggressiveness. Less often, dogs may simply drool with a hanging tongue! In certain areas of Canada where the risk is high, vaccination of dogs and cats is mandatory. Even dogs that do not go outside should be vaccinated: infected bats can fly into the house, and rabid wild animals like skunks and raccoons can enter a fenced yard. Research has shown that animals affected by rabies can shed the virus (infecting humans) before showing symptoms, which is why contact with a stray animal must be avoided. Instead, contact the appropriate authorities who will rescue it on your behalf.

Optional Vaccines for Dogs

Individual dogs presenting a specific risk may also be vaccinated against:

Leptospirosis

Seven variants of this bacterium cause leptospirosis in dogs in North America, and some variants cause more severe disease than others. There is no vaccine on the market for three variants of this bacterium, but vaccines protect against the most frequently diagnosed sources of this canine disease. Symptoms can include lethargy, fever, kidney or liver failure, sore muscles or joints, vomiting, and bleeding problems. Active infection can pose a real risk to the owner, as leptospirosis organisms can also infect people. Studies have shown that even dogs without clinical signs can shed the bacteria in their urine and therefore spread the bacteria to other people and dogs. This disease is not present in all regions, so the vaccine is only administered to dogs at risk of exposure. There are several endemic regions in Canada and the United States where infections are common. Dogs traveling to these regions may be at risk, and immunization should be considered.

Lyme Disease (Borreliosis)

Lyme disease is caused by the bacterium Borrelia burgdorferi and spreads through the bite of an infected tick. Although not all ticks carry the organism, ticks feeding on deer and mice are common vectors, particularly in the Northeastern United States, even though sporadic cases occur in bordering provinces of Canada. Borreliosis affects the kidneys, joints, and heart of infected dogs. Although many dogs may not develop clinical disease after infection, serious problems such as lethargy, fever, lameness, loss of appetite, and swollen glands can occur in some dogs. Vaccination against Lyme disease may be indicated for dogs that travel to or live in endemic areas. Tick control remains the primary method of preventing infections.

Giardiasis

This single-celled parasite of the intestines was formerly called Giardia lamblia, but now goes by the name Giardia intestinalis or Giardia duodenalis. Bloating, diarrhea, gas, and foul-smelling stools of soft, mucoid, or watery composition can be observed, sometimes accompanied by gas and blood, or affected dogs may appear clinically normal. Puppies tend to develop the most pronounced symptoms. Waterways traditionally represented the source of this infection, which is still sometimes called lambliasis. Today, many water sources are contaminated so that even urban dogs can become infected. The vaccine generally does not prevent infection but provides a protective effect against severe disease and reduces the shedding of cysts, which is important for environmental control. Medications can frequently cure the dog, but eliminating exposure to sources of contamination represents the only way to ensure the dog is completely rid of the parasite. Giardia infection is quite common; in one survey, the reported prevalence was approximately 50% or more in puppies and kenneled dogs. In puppies in a home environment, up to 25% may be infected, and as puppies age, their natural resistance improves. This vaccine is generally not administered except during certain active outbreaks. Dogs are not considered a high-risk source for humans, but giardiasis is considered a zoonosis.

Coronavirus

Coronavirus infections generally cause a mild and self-limiting illness in young dogs, but coinfection with Parvovirus is considered responsible for more severe disease affecting the digestive system. Vomiting and diarrhea are the most common clinical signs, and they usually resolve after a few days. Vaccination may be considered for dogs in high-risk environments, such as dog shows, where outbreaks can occur.

Frequently Asked Questions

How are vaccines administered?

Most vaccines are injected subcutaneously or into a muscle. Some vaccines are administered in the form of nasal drops.

Which vaccines does my pet need?

Although certain vaccines (core vaccines) are generally recommended for all healthy dogs, your veterinarian can help you choose those your dog needs based on the risks to which it is exposed. Factors to consider include the number of dogs in the home, contact with other dogs or wild animals, the dog's age and health status, travel plans, and boarding. It is important to reassess these needs with your veterinarian if your pet's situation changes.

How often should my pet be vaccinated?

Your veterinarian can help you establish a vaccination protocol that suits your pet's needs. In general, all pets receive a series of vaccines during the first six months of their lives, and the first booster one year later. The duration of immunity provided to animals by vaccines varies greatly among different diseases and vaccines; it is currently the subject of intense research and debate within the veterinary profession, and current protocols may change.

Regardless of the vaccination protocol chosen, the Canadian Veterinary Medical Association (CVMA) recommends an annual physical examination as a baseline for your dog's preventive care, and a twice-yearly exam for senior dogs. Pets age much faster than humans, and a regular exam will allow your veterinarian to detect and treat conditions such as dental disease, diabetes, heart disorders, and kidney failure that can manifest with age. Several breeds may be predisposed to certain health problems, even at an early age. Furthermore, an annual visit gives you the opportunity to discuss other topics such as behavior, nutrition, parasite control, and overall care for your pet.

Are vaccines safe?

Although vaccines must undergo safety testing before being licensed in Canada and are considered very safe, they can still cause reactions in a small number of pets. Often, dogs will be lethargic or feverish for 24 to 48 hours following vaccination and may not eat. In some dogs, a small, painless lump (granuloma) may form at the vaccine injection site and usually disappears four weeks later. Rarely, a dog will develop facial swelling or a severe allergic reaction (anaphylaxis) accompanied by vomiting, diarrhea, breathing difficulties, and collapse. Anaphylactic reactions are rarely fatal if treated immediately and appropriately. Some data indicate that vaccines may play a role in certain immune-mediated disorders in dogs and cats. Vaccines probably represent only one of many causes of these rare conditions.

Are there alternatives to vaccination?

No. Despite the occasional risks associated with immunization, it is universally recognized that vaccination plays an important role in protecting pets. However, some owners may be reluctant to have their pet vaccinated frequently. For booster vaccines, antibody titers can be measured by taking blood samples. Although these tests do not always provide solid proof of immunity, some clinicians use high titer results to decide, by examining risks, whether vaccines can be administered at longer intervals than the usual annual frequency. Currently, not all laboratories possess standards allowing an accurate interpretation of results, nor is it possible to verify immunity against all diseases. Community health requires vaccination as a strategy for controlling disease outbreaks.

What is the future of pet vaccination?

Vaccines will continue to play a very important role in protecting pets against serious diseases. New technologies may offer safer and more effective forms of protection. Furthermore, vaccine companies will continue to develop new technologies that provide safer and more effective forms of protection, as well as new vaccines against existing and emerging diseases in pets. Current research on the duration of immunity and the side effects of vaccines will help develop the best possible protection for dogs in Canada. Unvaccinated dogs also present a risk to the canine population by serving as a source of infection for other dogs, including young puppies; it is therefore important to remember that vaccination does not only protect your dog!