



# Vaccination and your Dog

## What are Vaccines?

- Vaccines contain viruses, bacteria or other disease-causing organisms that have been killed or altered so they can no longer cause disease. Newer vaccines may contain genetically engineered components derived from those disease agents. When given to an animal, vaccines will stimulate the body's immune system to form disease fighting cells (cell mediated immunity) and circulating proteins (known as antibodies) to protect against the disease.
- Most fully vaccinated animals will be resistant to the disease for which they are vaccinated. Protection may be reduced when given to young puppies, leading to vaccine interference due to antibodies absorbed from their mother's milk.
- Protective response to vaccines can be reduced in any dog with poor health, due to an uncompleted series of boosters, and in animals taking drugs that can suppress the immune system. The effectiveness of vaccines is also determined by the particular manufacturer's formulation and the nature of the particular disease against which the vaccine is designed to protect.

## From what Diseases can Vaccines Protect my Dog?

- The veterinary community agrees all dogs should be vaccinated against diseases that are widespread, cause serious illness, and/or are highly contagious (termed "core" vaccines). Other vaccines may be recommended based on the risk a particular disease poses to an individual dog (non-core vaccines). While many pet owners believe vaccines produce 100 per cent protection in all dogs, this is not always true. Some vaccines will protect most dogs, but others may only reduce the severity or duration of clinical signs.



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## Core Vaccines for Dogs

### Canine Distemper:

- This virus disease causes respiratory, digestive, and nervous system signs in affected dogs and can be fatal in about half of unvaccinated dogs. Recovered dogs may have permanent damage to their nervous systems. The chronic form of the disease can lead to hard pad disease, a chronic thickening of foot pads and encephalitis, an inflammation of the brain. Some dogs that acquire the virus show no signs or very mild signs, but can easily infect other susceptible dogs. Unvaccinated dogs are at a 350-fold increased risk of contracting this highly contagious disease. The virus is spread by discharges from the nose and eyes of infected dogs.

### Infectious Canine Hepatitis:

- This disease is caused by a viral agent (CAV-1) and is spread by infected urine. The virus may cause liver failure, eye damage, respiratory problems and can be fatal. Commonly encountered clinical signs are vomiting, abdominal pain, diarrhea, and occasionally, coughing. The CAV-2, a closely related virus is used in vaccines because this virus variant is less likely to cause side effects and is cross-protective.

### Canine Parvovirus:

- The disease is most commonly caused by parvoviruses of types CPV-2, CPV-2a, CPV-2b and CPV-2c. Infection is both serious and widespread in dogs. Signs, which include severe vomiting and diarrhea that frequently contain blood, results from virus damage to the digestive tract lining. The disease is spread via infected feces.
- Death in as early as 48 to 72 hours is possible; sudden death may also occur. Parvovirus infection may also cause bone marrow suppression and myocarditis (inflammation of the heart muscle). This virus is very resistant in the environment and is easily carried around on people's shoes and other objects leading to virus transfer. For this reason, even indoor apartment dogs that never go outside require protection. Vaccination is the most effective protective strategy for all dogs, young and old.



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## Rabies:

- All mammals including humans are at risk of contracting rabies. This disease is almost invariably fatal. Rabies is sometimes called “the great pretender” because signs are so variable in animals. Rabid dogs may display "dumb" rabies signs, characterized by listlessness, weakness, and paralysis, or the classic "furious" signs of rabies characterized by abnormal aggression.
- In some parts of Canada where risk is high, vaccination of dogs and cats is mandatory. Even dogs that do not go outside should be vaccinated — rabid bats can gain entry into homes, and rabid wildlife such as skunks and raccoons can enter a fenced yard or obtain access to a home through a non-collar limited pet-access door or screened door. Research shows animals with rabies can shed the virus (and so infect people or other animals) before signs are obvious, so use caution around suspect strays and wild animals to prevent contact. Contact the appropriate authorities to let them know a rabies suspect animal is around or in your home or yard.

## Non-core Vaccines for Dogs

Vaccines are available to protect individual dogs deemed to be at risk. Discuss these further with your veterinarian.

## Bordetellosis:

- A vaccine for *Bordetella* (a bacterial cause of kennel cough syndrome) is available. These bacteria cause respiratory signs such as coughing, nasal discharge, and fever. Serious infections can lead to pneumonia. Dogs in close contact with other dogs such as in dog parks, shelters, boarding and grooming facilities, dog shows, training classes and other high risk environments will benefit from vaccination for this disease. While *Bordetella* is a major cause of kennel cough, it is important to note that a number of other infectious organisms can cause similar symptoms. Vaccination for *Bordetella* may not prevent infection, but should reduce the severity and duration of clinical signs.



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### Canine Parainfluenza Virus:

- Dogs infected with parainfluenza virus, one of the causes of kennel cough, show signs of a hacking cough, discharge from the nose and occasional fever. While the parainfluenza virus on its own produces mild symptoms, it frequently presents as a co-infection with other kennel cough agents.

### Leptospirosis:

- A number of variants, or biotypes, of the *Leptospira* bacteria cause leptospirosis in dogs in North America, with some biotypes causing more severe disease than others. For some biotypes of this bacterium there is no vaccine commercially available in Canada, but vaccines do protect against the most commonly diagnosed ones.
- Signs of leptospirosis may include lethargy, fever, kidney and/or liver failure, sore muscles and joints, vomiting, and bleeding problems. Active infection may pose a real risk to the owner, as *Leptospira* organisms can infect people. Studies show that dogs without any clinical signs can shed bacteria in their urine and thus can transfer the bacteria to other people and dogs. This disease is not present in every geographic area, so it is administered to those dogs at risk of exposure. A number of endemic areas (where local-source infections occur) exist in Canada and the United States. There has been a dramatic increase in leptospirosis cases in eastern Canada in the last two decades. Dogs with outdoor lifestyles living in, or traveling into, endemic areas may be at risk and should be considered for vaccination.



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### Borreliosis (Lyme disease):

- Lyme disease is caused by the bacterium *Borrelia burgdorferi* and is spread via the bite of infected ticks. While not all ticks carry the organism, ticks feeding on deer and mice are common vectors, especially in the Northeastern United States and in bordering provinces in Canada.
- *Borrelia* infections affect the kidneys, joints, and heart in dogs. While many dogs (90 to 95 per cent) do not develop clinical disease after infection, problems such as lethargy, fever, lameness, poor appetite, and swollen glands can occur in some dogs. Tick control remains the most important method to prevent infections.

### Coronavirus:

- Coronavirus infections cause mild and self-limiting disease in most young dogs, although co-infection with parvovirus is considered to be responsible for more serious digestive system illness. Vomiting and diarrhea are the most common clinical signs, though resolving within a few days. Vaccination may be considered for dogs in high risk environments, such as dog shows, shelters and kennels where outbreaks can occur.

## Frequently Asked Questions

### How are Vaccines Given?

- Most vaccines are given by injection, either under the skin, or into the muscle. Some vaccines may be administered as drops into the nose or by mouth (orally).



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## What Vaccines does my Pet Need?

- Although core vaccines are generally recommended for all healthy dogs, your veterinarian can assist you with selection of vaccines for your dog based on their unique set of risks. Some factors to be considered include the number of dogs in the household, exposure to dogs or wild animals, age and health status, and travel and kenneling considerations. It is important to re-evaluate vaccination options with your veterinarian should your pet's lifestyle circumstances change.

## How Often Should my Pet Receive Vaccination?

- Your veterinarian can help you develop a vaccination protocol suited to your pet. Generally, all pets receive a series of vaccinations as puppies that are completed by six months of age, and their first booster is given a year later. How long vaccination immunity will last in pets is subject to ongoing research in the veterinary community at this time and current protocols may change with time. Current protocols provide for vaccines to be given every three years for distemper, parvovirus and infectious canine hepatitis, with many of these vaccines now carrying a three-year effectiveness label. Rabies can also be given every three years where allowed by law.
- No matter what vaccination protocol is followed, the Canadian Veterinary Medical Association (CVMA) recommends an annual physical examination as the basis for preventive care for your dog, and twice yearly examinations for senior dogs. More frequent examinations may be needed for pets with special needs or disease conditions. Pets age much faster than people in the same amount of time; an annual “check-up” allows your veterinarian to detect and manage illnesses, such as dental disease, diabetes, heart problems and kidney failure that may develop as your pet ages. Certain breeds may be predisposed to health problems even at an early age. In addition, an annual visit gives you an opportunity to discuss other topics such as behaviour, nutrition, parasite control and care of your pet.



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## Are Vaccines Safe?

- Although vaccines must undergo safety trials to receive licensing in Canada and are considered very safe, vaccines can still cause reactions in a very small number of pets. Most commonly, dogs may feel tired, may run a fever for 24 hours after vaccination, and may not eat as well. In some dogs, a small, non-painful lump may form at the site where the vaccine was injected; usually disappearing within four weeks. Very rarely, a dog will develop facial swelling or a generalized allergic reaction (anaphylaxis), accompanied by vomiting, diarrhea, breathing difficulties, and collapse. Anaphylactic reactions are rarely fatal if treated in a timely fashion.
- There is some evidence that vaccines may be implicated in some immune-mediated disorders in dogs and cats. Certain individual puppies within a few blood lines of Weimaraner breed dogs, for example, develop joint reactions when multiple vaccines given together. Vaccines are probably only one of many causes for these uncommon disorders in the general dog population. Veterinarians agree that appropriate vaccination by far outweighs rare risks.

## Are There Alternatives to Vaccination?

- No. Despite the very occasional risks associated with vaccination, it is widely accepted that vaccination plays an important role in protection of pets from these serious diseases. However, we know that in rare cases, owners may be disinclined to have their pet vaccinated.



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- For some diseases, blood samples can be used to measure antibody levels (titres). Though these tests do not provide solid evidence of immunity some clinicians use high titre results as an indicator along with low disease exposure risk that vaccines can be administered at a longer than usual revaccination interval. The Distemper, Adenovirus, Parvovirus (DAP) titres are now considered reliable and point-of-care tests can provide valuable information regarding whether a vaccine has successfully protected the dog. So, this sort of testing can be used to help your veterinarian determine an appropriate revaccination interval. Cost for titres is a little higher than for booster vaccines, making testing an alternative to standard vaccine intervals for those selected diseases. Titres are not recommended for rabies or the other diseases to assess vaccine protection as they are far less reliable.

### What is the Future for Pet Vaccination?

- Vaccines will continue to play a very important role in the protection of pets against these significant diseases. New technologies have provided even safer and more effective forms of vaccine protection. In addition, vaccine companies will continue to develop new vaccines for existing or emerging infectious diseases in pets. Current research into duration of immunity and side effects from vaccination helps ensure the very best protection possible for dogs in Canada.
- Unvaccinated dogs are a risk to the canine community by serving as a source of infection for other dogs, including young puppies. Remember, vaccination doesn't just protect your dog, it protects vulnerable puppies and other pets your dog may be in contact with, and in some cases, you and your family.

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Reviewers: Dr. Kathleen Cavanagh, BSc DVM MET, Online Editor, CVMA  
Dr. Nigel Gumley, DVM, MSc, DABVP (Canine/Feline)

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