

Dogs are wonderful companions. It's no wonder we consider them our best friends. Their love for us is unconditional, and we regard them as true-blue members of our families. The least we can do is give them the care they need and deserve.

Vaccination is the key to helping protect your dog against many diseases.

Visit your veterinarian regularly to keep your dog's vaccinations up-to-date and for routine physical examinations that can help detect potential health problems early. These preventive measures will help ensure the best quality of life for your canine companion – your friend for life!

**For more information on these and other canine diseases, talk to your veterinarian.**



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# A GUIDE TO VACCINATION FOR YOUR DOG

## VACCINATION PROGRAMS FOR YOUR DOG

Your veterinarian will recommend a vaccine program suitable for your dog. The protocol your veterinarian suggests will likely consider your dog's age, lifestyle, contact with other dogs as well as other circumstances which may be unique to your pet or the area in which you reside. The following list is a typical canine vaccination program that can be modified depending on your veterinarian's recommendations and your preferences.

### Typical Vaccination Programs

#### Puppies

- Canine distemper
- Canine adenovirus-2
- Canine parainfluenza
- Canine parvovirus
- Rabies
- *Bordetella bronchiseptica*
- Four-way Leptospirosis:
  - *L. canicola*
  - *L. icterohaemorrhagiae*
  - *L. grippityphosa*
  - *L. pomona*
- Lyme Disease (*B. burgdorferi*)
- Canine Influenza Virus (CIV H3N2 and H3N8)
- Canine Coronavirus

**Frequency:** Six weeks of age or older, two doses administered three to four weeks apart. If vaccinated before sixteen weeks of age, revaccinate with a single dose upon reaching sixteen weeks of age.

#### Adult Dogs

- Canine distemper
- Canine adenovirus-2
- Canine parainfluenza
- Canine parvovirus
- Rabies
- *Bordetella bronchiseptica*
- Four-way Leptospirosis:
  - *L. canicola*
  - *L. icterohaemorrhagiae*
  - *L. grippityphosa*
  - *L. pomona*
- Lyme Disease (*B. burgdorferi*)
- Canine Influenza Virus (CIV H3N2 and H3N8)
- Canine Coronavirus

**Frequency:** As determined by your veterinarian

#### Rabies

**Frequency:** A single dose at three months of age or older. A repeat dose should be administered one year later. Repeat vaccination every one to three years, depending on state law.

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### Why should I visit my veterinarian?

There is no substitute for regular visits to your veterinarian to detect disease in its early stages as well as to implement vaccination protocols, parasite prevention, dental hygiene and other programs that safeguard your pet from costly and sometimes fatal diseases.

### Why is vaccination important?

All dogs are at risk of exposure to various infectious diseases, some of which are life-threatening. Others such as rabies also pose a public health risk. Vaccination to help prevent common infectious diseases supports the first goal of medicine — disease prevention. Prevention of infectious disease is more beneficial to your pet than treating disease once it occurs. In general, viral infections cannot be treated, but symptoms may be managed by medication. Preventive vaccination is one of the most reliable and cost-effective methods of health care available to a pet owner.

### How does vaccination work?

Vaccines contain killed (inactivated) or modified-live (weakened) forms of viruses or bacteria. They stimulate production of protective antibodies and cell mediated immunity in healthy animals that can neutralize the virus or bacteria if the animal is later exposed. Some vaccines contain combinations of several viruses or bacteria that immunize against several diseases, minimizing inconvenience to the owner and discomfort for the pet.

### Why do puppies require more frequent vaccinations than older dogs?

Nursing puppies ingest antibodies from their mothers. These maternal antibodies help provide early protection against infectious disease. However, they can also neutralize the immunizing agents in vaccines. Maternal antibodies naturally decline during the first three to four months of life and eventually disappear. For this reason, puppies should receive a series of vaccinations beginning about six weeks of age. This increases the likelihood of



protection from vaccination as soon as maternal antibody levels have declined below protective levels.

### How often should my dog be vaccinated?

Immunity to most infectious diseases gradually declines over time, so periodic revaccination is generally necessary. Frequency of vaccination is dependent on your dog's lifestyle, age and risk of disease exposure. Your veterinarian can determine the appropriate vaccination interval based on your pet's history and individual circumstances.

### What about the potential risks of vaccination?

As with any medical procedure there are risks associated with vaccination; however, the benefits of vaccination almost always outweigh the relatively small risk of vaccine-related adverse effects. Allergic reactions to vaccination and local, injection-site irritation are uncommon, but they do occur. Your veterinarian can advise you of the possible risks associated with vaccination and the steps to take if vaccine-related reactions occur.

## Common Infectious Diseases of Dogs

The following infectious diseases of dogs can be prevented or lessened by vaccination:

### Rabies

Rabies is a viral disease that can affect all warm-blooded mammals, including dogs, cats, wildlife and humans. The virus infects cells of the central nervous system, producing incoordination and behavioral abnormalities such as unusual aggression or withdrawal. Once the signs of rabies appear, the disease is normally fatal. Rabies is usually transmitted by bite wounds, often from infected wildlife, which represent the largest reservoir of the disease in the United States. Vaccines are very effective in helping prevent rabies. Most states in the U.S. require rabies vaccination of dogs at one- to three-year intervals. Many states also require rabies vaccination of cats.

### Canine Parvovirus

Canine parvovirus is a common, highly contagious and potentially fatal intestinal virus that causes severe, often bloody, diarrhea and vomiting. Transmission occurs through direct contact with feces and contaminated surfaces. It is capable of surviving in the environment for extended periods of time making it difficult to eliminate.

Young puppies and unvaccinated dogs have the highest risk of contracting this disease. Appropriate vaccination is essential to helping prevent disease caused by this deadly virus.

### Canine Distemper

Canine distemper is a widespread virus that causes high mortality in dogs. Exposure is considered inevitable during a dog's lifetime, so canine distemper vaccination is almost always recommended. Puppies and young dogs without immunity are at greatest risk. Canine distemper virus infects various tissues in the dog's body, producing diarrhea, fever, nasal and ocular discharge, respiratory disease, appetite loss and neurologic signs such as muscular spasms and paralysis. The disease is easily transmitted and often fatal.

### Infectious Canine Hepatitis

Infectious canine hepatitis (ICH), is caused by canine adenovirus type 1 (CAV-I). CAV-I infects a wide range of tissues, including the liver (hence the name hepatitis), kidneys, spleen and lungs. Opacity of the eye ("blue eye") occurs in some cases. Death, chronic hepatitis or severe illness may occur, and recovery may be gradual in nonfatal cases. CAV-I is shed in urine and can survive in the environment for weeks or months. A similar virus (CAV-2) is used in canine vaccines to help provide protection against CAV-1. CAV-2 vaccine also helps protect dogs against respiratory disease (see below).

### Canine Infectious Respiratory Disease (CIRD)

In dogs, infectious respiratory disease often manifests with symptoms of coughing, lethargy, fever, and discharge from the eyes and nose. Common causes of respiratory infection in dogs include **canine parainfluenza virus, Bordetella bronchiseptica, respiratory coronavirus, Mycoplasma, canine influenza virus (CIV H3N2 and H3N8), canine adenovirus type 2 (CAV-2) and canine distemper virus.** In many cases where diagnostic tests are run dogs are found to be infected with more than one disease causing agent. When multiple pathogens are involved symptoms may be more severe and there may be an increased likelihood of life threatening diseases such as pneumonia. Vaccines are not available for all of the bacteria and viruses that cause symptoms of respiratory disease in dogs. In order to minimize symptoms and multiple infections it is important to help protect dogs as much as possible while recognizing that in some cases

we may only lessen symptoms. Similar to a human with a cold this disease is usually transmitted through contact with other dogs as well as from items that infected dogs have contacted such as toys and communal water bowls.

### Leptospirosis

Leptospirosis is a bacterial infection resulting from the contact with the urine of infected wildlife, rodents, contaminated water or food. Leptospira bacteria can infect the kidneys and liver, where they can cause a variety of symptoms including fever, loss of appetite, depression and generalized pain. The symptoms of leptospirosis may also be vague and non-specific leading to the potential for it to go undiagnosed. Dogs, wildlife and rodents continue to shed this bacteria in their urine for some time after they have been infected. This is particularly concerning as humans can also get Leptospirosis.

### Lyme Disease

Lyme disease is caused by a bacterium called *Borrelia burgdorferi*. It is transmitted by ticks and leads to symptoms such as fever, lethargy, joint pain and lameness. In some cases the lameness will appear to move or shift from one leg to another. It also has the potential to cause more severe symptoms such as kidney failure, heart and nervous system disease.

### Coronavirus

Canine coronavirus infects the intestines and causes vomiting and diarrhea in dogs. It is a different virus than the respiratory coronavirus described above. The symptoms are typically milder than canine parvovirus. Unvaccinated puppies and young dogs are most susceptible to infection. Like parvovirus, coronavirus is easily spread through contact with infected feces.

