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# Vaccines

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Vaccines are an important part of any dog or cat's life. They help prevent diseases, many of which are hard to treat or incurable once contracted. Vaccines are started when your pet is a puppy or kitten, and continue through adulthood. Vaccines are a vital component to keeping your pet healthy. We have noted, however, that there is a lot of confusion among pet owners as to what diseases are being vaccinated for, how long the vaccines last, and when vaccines are needed. Hopefully, this will help clear things up.

First Point- This article is about the vaccines given at this clinic. Recommended vaccination schedules vary from clinic to clinic.

## How do vaccines work?

Vaccines are usually made up of parts of the disease causing organism (usually a virus) or the organism itself. Rabies vaccines are a Killed Virus Vaccine, meaning the vaccine contains dead Rabies viruses in them. Many vaccines are modified live vaccines, meaning the vaccine contains a live

virus that has been modified so it is not infective. Other vaccines have just parts of the virus or bacteria in them, but they are the parts the body responds to. The body's immune system detects the virus or particles and begins to try to fight it off. This immune reaction creates antibodies against the actual disease. This means that when the body comes into contact with the real disease, it is already ready to defend itself against something it might otherwise not be fast enough to fight off.

## When to vaccinate

Most people know that puppies and kittens need vaccines. They also know that when adopting an adult dog, vaccines may be needed. People also seem to realize that with puppies and kittens, multiple vaccines are needed. All of this is true, but there are more factors to it than just "my puppy needs 3 sets of vaccines". Age plays a role, as well as how long between each set of vaccines.

Why do we give multiple sets of vaccines? With everything but rabies, it takes multiple sets of vaccines to grant your pet sufficient immunity to fight off the diseases for which we are vaccinating. Here's what that means. We give your dog the DAPP (distemper/parvo vaccine). It creates a strong immunity, but the immunity caused by only one vaccine lasts for only 4-6 weeks. If we give a booster of that vaccine in 3-4 weeks, that immunity is boosted to last one year. However, timing is important. If we give the first vaccine, then wait 3 months for the booster, then we are back to square one. The first vaccine was wasted, and the second one will only last for 4-6 weeks, and we need a booster in that time. The takeaway here is that you can't just say my pet got 2 vaccines if they were months apart. This all goes for puppies/kittens and adult dogs and cats with unknown vaccine histories (strays, rescues, shelter adoptions, etc).

Puppies and kittens get more than 2 sets of vaccines, usually 3 or 4. This is because they need to booster just like adults, but we are also fighting against the maternal antibodies. When puppies and kittens nurse for the first time they receive maternal antibodies in the colostrum (first milk). These antibodies help the puppy/kitten's immune system fight off disease while the young one's immune system develops. Since the vaccines are made to look like diseases to the body, the maternal antibodies fight off the vaccines as well. The amount of maternal antibodies a puppy/kitten receives depends on the health and vaccine status of the mother, as well as

how much colostrum was taken in. Some puppies/kitten's antibodies wear off at 6 weeks, others at 12 weeks. There is no way to know, therefore we start vaccinating at 6-8 weeks and continue. Most experts recommend the last vaccine come after 14 weeks of age. It is also state law that Rabies not be given until at least 12 weeks of age.

One last note on this: The vaccines do not cause an immediate immunity. It takes the body 5-7 days for the body to respond to the vaccine. This means that with a new puppy/kitten, you should limit exposure potential- No dog parks, no walking on pet store floors, etc. It is ok to go into a controlled environment (fenced in backyard, etc) provided you have not had an outbreak like parvo there. This also is why we can't just give all three boosters at once. We must wait for the body to respond before boosting the vaccines.

## What do we vaccinate for?

### Rabies:

Rabies is a viral disease that affects the nervous system in all mammals. There is no cure for rabies, and it is always fatal. Rabies is also highly transmittable from one host to another, and can be transmitted from animals to humans. Because of the threat to humans, Rabies is the one vaccine that is mandated by law. The confusion comes with people wondering if the vaccine is for 1 year or 3 years. The answer to that question is different for dogs and cats.

Dogs- In dogs, whether or not the Rabies vaccine is a one year or three year vaccine is a matter of state law, not the vaccine. If it is the dog's first vaccine, then the state recognizes it for only 1 year. This is the same for new puppies and for strays. If you have a dog with unknown vaccine history (even an adult, age does not matter), the rabies given is considered its first. The next booster after that is recognized for three years. Note: We use the same vaccine in dogs whether it is the first vaccination or a booster, we use the vaccine required by law. It is state law that decides whether it is recognized for 1 year or 3 years. Again, it is not dependent upon age, but upon vaccination history. Also, each state is different on their rabies law. This article refers to Texas State law. If you would like to know about a different state, you may need to contact a veterinarian practicing in that state.

Cats- In cats, there is a difference between the 1 year and 3 year vaccines. The additive that makes the vaccine last for three years is called an adjuvant. Several years ago, there was an outbreak of injection site sarcomas, or tumors caused by injections, in cats. While the outbreak was very small, it was still a concern. The initial thought was that the tumors were related to vaccines only, but it has been shown that any injection could lead to them. It was theorized that the adjuvant in the vaccines caused increased reaction at the injection site, and therefore the cat experts recommended using non-adjuvanted vaccines. This means the Rabies vaccine in cats only lasts one year. The scientific evidence has shown this theory about the adjuvant to be debatable if not inaccurate, but the experts still recommend non-adjuvanted vaccines when possible. Therefore, even though the risk is extremely low for a reaction using the longer vaccine, we follow the expert's advice and use one year Rabies vaccines in cats. If you would like to have a three year vaccine for your cat, then just ask, we are happy to do it.

Final Points: Rabies vaccine is the only vaccine required by law. In both dogs and cats, one vaccination will grant a year of immunity for the first vaccine; there is no need to booster a rabies vaccine 3 weeks later. There is such a thing as a rabies titer (measuring how much vaccine is in the system), but the state will not accept it as a substitute for vaccinations.

## “Boosters”

Both dogs and cats need an annual vaccine besides Rabies. We call these boosters. Others call these the 7 in 1 vaccines, or something to that effect. There is confusion on whether these are 1 year or 3 years, and like Rabies; the answer is different for dogs and cats.

Dogs- DAPPL (Distemper/Parvo vaccine)



This is the “7 in 1 vaccine”, or the Distemper/Parvo vaccine (those are the diseases in the vaccine most recognizable). Here is what is in the vaccine:

**Distemper**- A viral disease that is highly contagious. It is seen mostly in young dogs. It attacks the respiratory system, GI system, skin, and CNS (Central Nervous System). It causes eye and nasal discharge, coughing and sneezing, and can lead to seizures and tremors. It is very often deadly, and there is no treatment. Dogs that survive it often have underdeveloped teeth, tremors, and thickened skin on pads and nose. Distemper is prevalent in the environment, and any unvaccinated puppy is at risk.

**Adenovirus type 2**- This virus is a major cause of Canine Infectious Tracheobronchitis. This causes irritation in the trachea, leading to a severe cough. This also protects the dog against Adenovirus type 1, which causes Canine infections Hepatitis.

**Parainfluenza virus**- Not to be confused with canine influenza (see below), this is another cause of Canine Infectious Tracheobronchitis.

**Parvovirus (Parvo)** – Parvo is a virus that destroys the lining of the intestinal wall, and can also attack the heart and bone marrow (although not as common). Common signs are profuse vomiting and bloody diarrhea. This disease is commonly seen in unvaccinated puppies, but can also be seen in unvaccinated adults. The treatment for this disease is expensive, the disease is very hard on the puppy, and even with treatment the puppies often die. Parvo is very prevalent in the environment. It is passed through the stool, and can stay in the environment for years.

**Leptospirosis**- Lepto is a bacterial disease passed in the urine of wild animals (raccoons, opossums, etc.). While this was once considered a rural disease, it is now prevalent in urban areas. Lepto can cause kidney and liver disease/failure, muscle weakness, GI signs, as well as sudden death. The big concern with Lepto is that it is Zoonotic, meaning it can be transmitted FROM YOUR PET TO YOU.

**Final Points:** While studies have shown that the Distemper and Parvo components of the vaccine may last up to 3 years (depending on the vaccine), the Lepto, Adenovirus, and Parainfluenza virus only last for 1 year, no matter the vaccine. Therefore, we give this vaccine yearly. It does not hurt your dog to get this vaccine yearly. There are titers for the components of this vaccine, but each component must be measured separately, and can be quite expensive (some over \$100 apiece). Furthermore, not all places requiring vaccines will recognize titers.

### Cats- (FVRCP)



Like the DAPPL in dogs, this is a vaccine with multiple components. They are:

**Rhinotracheitis**- Also known as Feline Herpes Virus, this causes upper respiratory disease. Signs are runny eyes, nasal discharge, and sneezing. It is highly contagious. With the viral disease, it can often become recurring over the course of its life, affecting the cat several times a year. This is especially common in shelter situations. While the vaccine does not provide complete immunity, it does reduce the symptoms for those cats that contract the disease.

**Calicivirus**- Another virus that causes upper respiratory disease, it is also highly contagious, and is commonly seen in places with large cat populations (shelters, etc.). It can occasionally cause muscle stiffness and weakness. A new strain of Calici causes severe ulcerations on the tongue and nose.

**Panleukopenia**- The name says it all, assuming you speak Latin. Pan (all) Leuko (White Blood Cells) Penia (destroy or kill). Panleukopenia is also called the Feline Parvovirus, as it caused by a virus in the same family as Canine Parvovirus. It invades the bone marrow, and destroys the cat's White Blood Cells, thus destroying its immune system. It can also affect the GI system and lymph nodes. It is highly contagious, and is passed through nasal secretions. Treatment, like Canine Parvo, is supportive and often unrewarding.

**Chlamydia felis** (used to be *psitacii*) - The name changed, the disease stayed the same. This is a bacterium that causes upper respiratory disease and eye discharge. It is highly contagious.

## Cats- Leukemia

Feline Leukemia is a viral infection in cats that causes immune suppression, and can lead to malignant cancers like lymphoma and sarcoma. The immune suppression leads to a cat that gets sick very easily. This disease is prevalent in the stray cat population. It is transmitted through the saliva, usually in grooming and playing, but can be transmitted by using the same food/water dish. This vaccine is especially important if your cat goes outside. This vaccine can be combined into the same vaccine as the FVRCP, allowing for one injection instead of two.

Final Note: Just like the Rabies vaccine, we use adjuvant free vaccines to reduce the risk of injection site sarcomas. Therefore, these vaccines (at our clinic) are for one year.

## Boarding vaccines

There are two canine vaccines you may need in boarding and grooming situations. They are:

**Bordetella (Kennel Cough)** - Most people who board or groom their dogs have heard of this vaccine. The majority of boarding and grooming places (including us) require this vaccine. There are two versions- and injectable and an intra-nasal (squirt up the nose) vaccine. The one we use often depends on whether the dog will allow us to squirt something up his nose! The vaccine is generally recognized to last for 6 months, but there are a few places that will recognize it for a year (this all depends on your boarding place. We here recognize it for six months as that is what the science supports). One thing to note, the Kennel Cough vaccine is like the flu vaccine in people. We can only vaccinate for certain strains of kennel cough. Vaccinated dogs are protected from the most common and severe strains, but they can still contract kennel cough. It just means that it is a strain that cannot be vaccinated for.

**Canine Influenza**- This is the dog flu. It does not spread to people. Just like Kennel Cough, it produces a dry hacking cough. Like people, most dogs that get the flu recover with supportive treatment (make sure eats and drinks, etc.), and is treated like Kennel Cough. Dogs that are immune compromised (elderly, sick) can develop more serious clinical signs, even death. The prevalence of Canine Influenza in our area is still being debated. Check with your boarding facility to see if they require it (we do not). If you need the vaccine, please call first. We keep a limited number of the vaccine on hand, and may need to order some.

## Other Vaccines

There are other vaccines out there that are not routinely given, but some awareness is needed.

### Dogs

**Coronavirus**- Corona is a virus that attacks the GI system, especially in puppies. It was once included in the DAPPL vaccine. Studies have shown

that Corona does not cause a problem unless the puppy is also suffering from parvovirus. Since we routinely vaccinate for parvo, the corona vaccine is fallen out of favor and is not routinely given.

**Lyme**- Lyme disease is a tick borne disease that can also be transmitted to people. We do not have Lyme disease in this area, but if you go hunting with your dog in West Texas, it may be beneficial to have this vaccine. Please call for availability.

**Rattlesnake**- There is a vaccine that gives some protection against Rattlesnake venom. This vaccine is sometimes given to dogs that hunt in areas where there are lots of rattlesnakes, like West Texas. Please call to check on availability, as we do not routinely keep this vaccine in stock.

## Cats

**Feline Immunodeficiency Virus (FIV)** - FIV, or feline AIDS, is a virus that attacks the cat's immune system. A cat can live with FIV, but will get sick much easier than a normal cat. FIV positive cats tend to present with recurrent upper respiratory infections, etc. This disease is also prevalent in the stray population. It cannot be transmitted to people. The vaccine for FIV does not grant very strong immunity to the disease, and is associated with a higher percentage of vaccine reactions. Because of this, we do not give this vaccine.

**Feline Infectious Peritonitis (FIP)** - FIP is a viral disease that causes a cat to have fluid buildup in its body cavities. It is caused by a virus that most cats have been exposed to. In some cats this virus spontaneously mutates, going from benign to disease causing. The cause of this mutation is unknown, and the disease is not considered contagious. FIP is usually fatal. The vaccine for FIP is not 100%, and is not recommended for routine cat vaccines. This vaccine may be beneficial in shelters and areas with large cat populations.

We hope this helps you understand what vaccines your pet receives, and why. Again, this is a representative of the vaccines at our clinic, and this can vary from clinic to clinic (mostly in how long they last). If you have any questions or concerns, don't hesitate to call us.

