

# Feline Vaccinations: What you need to know...

## **What is the difference between core and non-core vaccines?**

Core vaccines are those which are strongly recommended for all kittens and cats with an unknown vaccination history. The diseases involved in core vaccines cause significant morbidity (sickness) and mortality (death) and are widely distributed. These vaccines result in relatively good protection from disease. Non-core vaccines are recommended for kittens and cats that may be more likely to contract these diseases, but are not always necessary. A chat with your veterinarian can assess whether your feline friend needs any of the non-core vaccines, and we strongly urge you to vaccinate with the core vaccines!

## **What are the core vaccines?**

Rabies, FVRCP (feline rhinotracheitis, calicivirus, panleukopenia)

## **What vaccines are not considered core?**

FelV (feline leukemia virus), FIV (feline immunodeficiency virus), FCoV (feline coronavirus)

## **What is MidValley Animal Clinic's vaccine protocol?**

Beginning at 8 weeks, kittens receive their first FVRCP vaccine.

At 11-12 weeks of age (3 weeks later) they receive their second FVRCP, and their first FeLV.

Finally, at 14-15 weeks of age (an additional 3 weeks after 2<sup>nd</sup> round of boosters) they receive their third and final FVRCP, their second and final FeLV, as well as their rabies vaccine.

Your kitten must be at least 12 weeks old to receive its rabies vaccine, and it must be 14 weeks and older to receive its last set of boosters.

## **Why do I need to vaccinate?**

To answer this question, it is important to understand the infectious diseases we are trying to vaccinate against.

### **Rabies**

An acute, progressive virus that attacks the nervous system. It principally affects carnivores (dogs, cats, bats, etc.) but can affect any mammal (including humans).

It is transmitted through saliva, into tissues (usually through the bite of a rabid animal but can also include saliva introduction into fresh wounds). Once inside the body, the virus spreads through nerves, into the brain. When it reaches the brain, the virus causes the classic clinical

signs: abrupt behavioral changes (sudden aggression, staggering, excessive salivation, etc.), and unexplained paralysis (inability to move).

Because this virus is fatal (to both pets and humans), it is extremely important to have your pet vaccinated against it. It is also required by licensing laws. Even if your cat is indoors only, it is strongly encouraged that your pet be protected. You never know when a rabid bat could enter into your home!

### **Feline Panleukopenia**

This infectious disease has a few names: feline distemper, feline panleukopenia and “cat plague”. Regardless of nomenclature, the culprit is a parvovirus (similar to canine parvovirus). This virus can cause life-threatening disease and is considered ubiquitous (meaning it is everywhere), and it is highly contagious. Those at risk are unvaccinated cats, kittens and young adults usually living in large groups. Nearly every cat will be exposed to this virus, and it is spread via fecal-oral route as well as fomites (virus remaining on bedding, toys, food dishes, etc). Infection can then occur when the virus enters the body through the mouth or nose. Whether or not your cat becomes infected depends on its vaccination status (individual immunity) and how many individual virus particles enter the body. Once inside, the virus attacks rapidly dividing cells: starting with the lymph nodes, then makes its way to bone marrow and intestine; once in these cells, it can cause a decrease in white blood cell production (our body’s main defense against infection), as well as intestinal ulceration. Overall the cat becomes extremely ill, dehydrated, and unable to fight off secondary bacterial infections. Because the virus is so prominent in the environment, kittens tend to have some immunity, but the vaccine is so effective that when given can provide protection for life. The majority of cats that become infected with feline distemper are those which are *unvaccinated* as younger kittens, and are exposed to a large volume of virus that overwhelms their partial immunity.

It is important to note that kittens can become infected during the queen’s (their mother’s) pregnancy. If a mother is infected with feline distemper during the final stages of pregnancy, the kittens’ brains are affected, leading to cerebellar hypoplasia. The cerebellum helps us coordinate balance and movement and is responsible for us moving about! With an abnormal cerebellum, the kitten will have intention tremors, meaning when this kitten tries to focus on movement it tremors so much so that movement seems impossible. These kittens are often affectionately termed “wobblers” and can go on to lead a normal life with special care by owners.

Because our vaccinations are so effective, and because this is such a fatal disease, there is no reason you should not have your cat vaccinated!

## **Feline Calicivirus and Rhinotracheitis**

Feline upper respiratory tract diseases (URTD) are extremely common and sometimes difficult to manage. Multiple viral and bacterial agents are responsible, and we often see co-infection in affected cats. The most prevalent viral causes of URTD are feline herpesvirus-1 (FHV-1) and feline calicivirus (FCV). Secondary bacterial infections can occur in conjunction with viral infections, and these are most commonly seen in shelters and catteries. Vaccines for FHV-1 and FCV have existed for decades, but do not provide complete protection (think of the human flu shot as an example of this as well)! Vaccination is however extremely important in that it lowers the severity of disease if your cat were to contract either virus.

The clinical signs of a cat with URTD varies greatly. We often see the most severe signs in young kittens and older, immunosuppressed cats. Signs to look out for are as follows: conjunctivitis (pink-eye), discharge from the eyes, sneezing, and less commonly, coughing with labored breathing. Cats may also be lethargic, lose their appetite, salivate excessively, and become feverish. Specifically, FCV is most commonly associated with ulceration in the mouth, which can be extremely painful. If you notice any of these signs in your cat, it is important they be seen by a vet and receive supportive care. In addition to vaccination, reduction of stress and overcrowding is critical in preventing URTD.

**What are those diseases which are not considered to be core vaccines?**

## **Feline Leukemia Virus**

The feline leukemia virus (FeLV) is unfortunately a common infection of cats, and is widespread in the cat population. It is not considered a core vaccine however, as not all cats will come in to contact with the virus. FeLV is transmitted several ways, the main method is through the saliva of infected cats, which contaminates the eyes, mouth, and nose membranes of non-infected cats through excessive licking. To a lesser extent, the virus can pass through blood and biting, and can also be transmitted from mother to fetus (developing kittens) during pregnancy. Therefore, if you have a cat who is strictly indoors and has never met another cat, chances of them contracting the virus are quite low. Furthermore, most infected cats can eliminate the virus and become immune. But for those cats that do not develop an immunity, the virus spreads within the bone marrow. A large percentage of cats exposed to the virus will have a latent (hidden) infection and can still spread the disease. These cats who become carriers can become quite ill in times of stress, since both FeLV and stress are main causes of immunosuppression. Around 25% of FeLV positive cats develop lymphoid neoplasia (lymphoma). Overall, the outcome of an FeLV infection is extremely variable and depends strongly on the virus strain involved, and

factors that influence the host immune function (such as your cat's age, genetics, co-infections, stress and treatment with immunosuppressive drugs).

To complicate matters further there are three subtypes of FeLV: FeLV-A, FeLV-B, and FeLV-C. FeLV-A is present in all cats with FeLV. FeLV-B may accelerate development of lymphoma, and FeLV-C is associated with anemia (lack of red blood cells in the bloodstream, these are our oxygen carrying cells). If your feline friend tests positive on an in-house blood test, it is always a good idea to confirm with laboratory tests.

### **Feline Immunodeficiency Virus**

We do not routinely vaccinate against the Feline Immunodeficiency Virus (FIV) because the existing blood tests cannot differentiate between a cat that has been vaccinated and a cat that has an active infection. Furthermore, the vaccine only offers partial protection and certain types of vaccine can lead to sarcoma formation (a cancer that can be caused by an "ingredient" in the vaccination). Therefore, we save this vaccine for cats who are high at risk for contracting FIV (such as outdoor cats who fight often) and the vaccine should only be given to those who test negative for the virus. FIV is spread by biting, and to a lesser extent from the queen (female cat) directly to her kittens (either as fetuses or through milk), and possibly through blood transfusions and mating. Like FeLV, FIV is a virus that alters cats' immune systems and leaves them susceptible to other infections. This is because FIV is carried to nearby lymph nodes and reproduces in our infection fighting white blood cells, called T-lymphocytes. The virus then spreads to other lymph nodes and can cause a brief enlargement of these nodes, and a fever (often times this may go unnoticed by an owner). After this active infection, some cats deteriorate quickly, and some act just fine with recurrent illness in-between periods of normal health. The same bacteria, viruses, protozoa, and fungi that are found in normal environments that usually do not make healthy cats sick, can cause severe illness in a cat with a weakened immune system. Signs an owner ought to look for (representing a depressed immune system) are widespread and include poor coat quality with persistent fevers and loss of appetite. Other signs include inflammation of the gums (gingivitis) and mouth (stomatitis) and chronic infections of the bladder, upper respiratory tract, eyes, skin and gastrointestinal tract (such as diarrhea). Furthermore, certain types of cancer and blood diseases are more common in cats with FIV and owners may note a slow, progressive weight loss followed by severe wasting late in the disease. A diagnosis of FIV is not a death sentence, so long as positive cats are kept indoors and are the only cat in the household. A great way to protect your cat who does venture outdoors is to have it spayed or neutered, to decrease roaming and fighting! It is also important to keep tabs on your kitty and monitor for any signs of illness.

## **Feline Infectious Peritonitis**

The most important thing to note about Feline Infectious Peritonitis (FIP) is that it is inevitably a fatal disease of cats. It is challenging to diagnose and even more difficult to control, and is a complex disease that is still not well understood. In order for a cat to develop FIP, it must have been infected with Feline Coronavirus (FCoV). It is important to note that FCoV is a common virus among cats, and is shed through feces and infects other cats by inhalation or ingestion; in the majority of cats, FCoV will cause little to no problem. Thus, it becomes a challenge for veterinarians to determine a diagnosis of FIP and FCoV, since majority of cats will be positive on various blood or fecal samples. Most cats will clear the infection and have no sign of disease, some cats will be chronic shedders, and a small percentage will unfortunately develop FIP. Normally, FCoV targets the intestines, and in FIP cases, it is believed the virus mutates (changes) in a way that it can infect certain types of white blood cells where it replicates and destroys these cells. It is still unknown what causes this change, and as a result, we do not have a FIP-specific test.

For cats who develop FIP, their immune system ultimately fails in forming a proper response against the virus. These cats' bodies attempt to fight off the virus, but in doing so, manage to destroy innocent cells not affected by the virus. The end result is major damage to tissues which can lead to organ failure and death. This tissue damage occurs mainly in and around blood vessels, making them "leaky", which leads to fluid accumulation in the abdomen, chest or both (this is known as the wet form of FIP). In other cases, this tissue damage is more localized, occurring in a single or a couple of different tissues, such as the kidneys, liver, eyes, intestine, lung or even nervous system (this is known as the dry form of FIP). Cases of dry FIP tend to be delayed and occur over a longer period of time and clinical signs reflect which tissue is affected (eye infections, kidney failure, diarrhea, etc.). Some cats just appear unwell, showing weight loss, decreased appetite, depression and lethargy. Unfortunately the disease in either case is ultimately fatal.

It is a frustrating disease for veterinarians since it is extremely difficult to diagnose in its early stages. Other diseases are needed to be ruled out first with specific tests, as well as overall bloodwork as a minimum. Many veterinarians are certain that a cat is infected with FIP when it presents with an abdomen full of protein-rich fluid that when removed, is bright yellow in color. There is a vaccine against coronavirus, but as we have just learned, many cats are exposed to this virus and can mount an appropriate immune response. The vaccine is not recommended, unless there is a situation where FIP is a significant problem.

There appears to be hope, as new treatment protocols are on the horizon to hopefully help us battle this horrendous disease.

We discourage advice from Dr. Google, but would instead prefer you to check out [www.VeterinaryPartner.com](http://www.VeterinaryPartner.com) for more information.

To set up an exam or if you have further questions, please call us at

**801-269-1213**

**Midvalley Animal Clinic**

