

## VACCINATIONS

### **Why does my pet need vaccinations?**

Puppies and kittens are born with immature immune systems which make them highly susceptible to contracting disease. Thankfully, their mothers transfer to them part of their own immunity via colostrum when they nurse. Colostrum is a substance found in the mother's milk for the first few days after giving birth. It provides her newborns with important protective proteins against several diseases. These agents are known as "maternal antibodies". As long as maternal antibodies to a particular disease are active in the newborn's system, they will help give protection against that disease. However, they will also render useless any vaccine given against that disease during the time they are functional. How long these maternal antibodies last varies between individuals and is affected by many factors. We do know that maternal antibodies are gone by 16-20 weeks of age. Therefore, the typical puppy/kitten vaccine series starts around 6-8 weeks of age. Boosters are administered every 2-4 weeks until around 16 weeks of age in hopes of narrowing the "window of opportunity" for infection. This window of opportunity is the time period between when the maternal antibodies wear off and the vaccines are able to stimulate the individual's own immune response to a disease. If animals are over 20 weeks of age and receiving their first ever set of vaccines, they will receive a series of two vaccines, 2-4 weeks apart. There are some exceptions to these rules (i.e. rabies). The incidence of disease and death is significantly higher in areas where vaccinations are not commonly administered. This is especially true for Canine and Feline Distemper, Parvovirus and Rabies.

### **Does it seem like a lot of shots to you? Probably.**

#### **Is it?**

No! It is much cheaper to vaccinate and prevent a disease such as Parvovirus in a puppy than it is to treat it. Additionally, there is never a guarantee that the puppy will survive, even with the best of treatment. On average, a puppy/kitten receives 3-4 sets of vaccines in a series.

### **Does that mean more frequent boosters would be even better?**

No. Giving vaccines too frequently (less than 2 weeks apart) does not give the body time to respond properly to the vaccines. If a vaccine booster is given too soon, the body's immune response to the first vaccine will interfere with the response to the second vaccine. Thus, you do not get the desired "booster" effect from the second vaccine that makes the immune response stronger.

### **Does vaccinating my pet guarantee it will never get that disease?**

No. There are several factors that influence an animal's immune response to vaccines. We know that some vaccines may only minimize the effects of a disease (i.e. Bordetella, Feline Herpes and Calici viruses). We also know a subset of animals will never respond to vaccines no matter how many they receive. These animals are known as non-responders.

### **Which vaccines should my pet receive?**

Which vaccines your pet should receive is influenced by several factors such as: which disease you are vaccinating against, age, life-style, local regulations and any previous adverse reactions or health conditions that may be aggravated by immunizations. In general, vaccines are categorized as: core and non-core. At the KSU-VMTH, we follow the American Animal hospital Association's (AAHA) categories for dogs and the American Association of Feline Practitioner's (AAFP) categories for cats.

1.) **Core vaccines** are those aimed at protection against diseases that cause significant illness and/or death and for which the majority of population is at risk of contracting. Examples include: Canine Distemper, Canine Parvovirus, Canine Adenovirus 2 (hepatitis), Panleukopenia (feline distemper), Rhinotracheitis (feline herpes) and Feline Calicivirus. A core vaccine may also be required by law (i.e. rabies).

2.) **Non-core vaccines** are for diseases for which an individual's life-style gives it a greater chance of exposure and development. Some, but not all, of these diseases can cause serious illness or even cause the death of your pet. Depending on where you live, some of these may be moved to the "core" category due to higher disease prevalence in that area (i.e. Lyme).

Examples of **canine non-core** vaccines include: Bordetella, Leptospirosis, Coronavirus, Lyme and Parainfluenza.

Examples of **feline non-core** vaccines include: FeLV, FIV, Chlamydia, Bordetella and Virulent Calicivirus (this is different strain than the calicivirus included in the core vaccine).

3.) **Not recommended vaccines** are a category for some vaccines. Examples for dogs include: Giardia and coronavirus. Examples for cats include: FIP and Giardia.

4.) **Other vaccines** include the canine vaccines for Crotalus atrox toxoid (rattlesnake vaccine), Porphyromonas sp. (periodontal vaccine) and the Melanoma vaccine. There is not enough evidence to validate the efficacy of the Crotalus and Porphyromonas vaccines. These vaccines may be effective, but there is insufficient data as to make a firm recommendation. The Melanoma vaccine is not for the prevention of malignant melanoma. Rather, it is intended to be used as a therapeutic aid in the treatment of dogs already diagnosed with oral malignant melanoma. Additionally, patients must meet a predetermined set of criteria to be considered candidates for its use and it can only be used by a boarded oncologist.

### **How often should my pet receive vaccinations?**

This can vary with the type of vaccine, age, lifestyle, local laws and other health factors. We now have data showing that the core vaccines can invoke immunity that can last for several years if the proper vaccine series has been administered. In general, puppies and kittens receive their core vaccines starting around 6-8 weeks of age and are boosted

every 2-4 weeks until around 16 weeks of age. They are boosted again one year later and every 3 years thereafter. Adult dogs with no previous vaccine history receive a series of two core vaccines (2-4 weeks apart), are boosted one year later and every 3 years thereafter.

Local and /or state laws mandate how frequently your pet must be vaccinated for rabies. The earliest age to receive the first rabies vaccination is 12 weeks. After the first rabies vaccine has been given, an animal must have a booster one year later. Age at the time of first vaccine or type of vaccine (1 yr. vs. 3-4 yr. vaccines) does not change the first booster interval. Subsequent booster intervals are determined by the type of vaccine used (1 yr. vs. 3 yr. or even 4 yr. for cats) and local ordinances.

Non-core vaccine intervals are generally one year. However, the interval may be shorter for some vaccines (i.e. Bordetella) due to increased exposure risk and the possibility of protection not lasting a full year.

\*\*It is best to work with your veterinarian and tailor a vaccine schedule that suits your pet's individual needs.

### **I have a totally indoor cat, does it need vaccinations?**

Yes. Most experts agree that indoor animals receive at least the core vaccines. At some point in its life, a pet may have to be boarded, transported, or taken to a hospital for treatment. If your pet is not current on its vaccines it, will be at greater risk for contracting disease from these situations. Indoor cats should receive rabies vaccines. There are numerous accounts of indoor only cats escaping to the outdoors and ending up in a fight with another animal. There are also several incidents of indoor only cats playing with and catching rabid bats that have entered a house. Remember, in many places rabies is also required by law!

### **Will vaccinations harm my pet?**

There is some chance of an adverse reaction to a vaccine. Fortunately, the benefits of vaccines far outweigh the risks. Typical mild vaccine reactions include low-grade fever, tenderness at the injection site, mild lethargy for 1-2 days, temporary lumps and mild bouts of vomiting and/or diarrhea. More serious but less common reactions include extreme lethargy, protracted vomiting and/or diarrhea, hives, respiratory difficulty, cancer at the injection site (cats) and rarely, death. It is important to report **ANY** reaction to your veterinarian. Side effects such as tenderness at the injection site and mild fever/lethargy may be minimized by giving your pet an anti-inflammatory pain reliever before and after receiving its vaccines.\*\* Make sure you ask for your veterinarian's advice as to which anti-inflammatory would be the best and safest choice for your pet.

If your pet has had a more serious reaction such as hives, protracted vomiting/diarrhea or severe lethargy, you should speak to your veterinarian about pre-treating your pet with an antihistamine such as Benadryl. Vaccines should also be split for these animals and separated by at least 2 week intervals in an attempt to avoid over-stimulating the immune system. It is also wise to leave your pet with your veterinarian the entire day for

monitoring. If a severe reaction should develop, your pet can then be treated promptly with injectable medications.

Vaccine-induced sarcoma is an issue in cats. This is a very aggressive type of cancer that has a strong association with vaccinations, but this cancer has also been reported as a consequence of other types of injections. It is thought the incidence ranges from 1:1000 to 1:10,000. No one knows for sure what the true incidence is. Vaccine adjuvants may be responsible for development of cancer. Adjuvants are chemicals added to a vaccine to induce a stronger immune response. They are commonly found in rabies and FeLV vaccines. Adjuvants are found in some FVRCP vaccines. The AAFP recommends using only injectable vaccines that do not contain adjuvants or intranasal forms if available. Although vaccine-induced sarcoma is a devastating disease, the risk of developing this cancer is far less than the chance of your feline friend contracting contagious diseases if not properly vaccinated. Some of these diseases (Feline Distemper and FeLV) can be as equally devastating for your pet. If you notice a lump at a site where any type of injection has been given, notify your veterinarian ASAP. Guidelines established by the Vaccine-Associated Feline Sarcoma Task Force (VAFTF) to help your veterinarian determine if a sample should be submitted for definitive diagnosis. These are:

- If the lump is less than 2 cm but persists for more than 3 months after vaccination
- Is at any time larger than 2 cm in diameter (about the size of an olive)
- Is increasing in size one month after vaccination

The KSU-VMTH, follows the AAFP guidelines for recommended injection sites so that we know which vaccine is associated with a lump. It also aids in the surgical management of these tumors. The sites for these injections are:

Right front lateral leg below elbow: FVRCP +/- Chlamydia

Left front lateral leg below elbow: Giardia

Right hind lateral leg below stifle (knee): Rabies +/- any other antigen added to it

Left hind lateral leg below stifle: FeLV and FIV +/- any other antigen added to them  
except rabies

\*All of these should be given subcutaneously (SQ) for easier detection of lumps should they form.

\*\*Injection sites of other medications should be recorded

\*\*\*Every effort should be made to avoid giving vaccines between the shoulder blades. If a vaccine-induced sarcoma should develop there, it can not be completely removed.

In the event your cat is diagnosed with a vaccine-induced sarcoma, a consultation with a boarded oncologist is suggested before surgery or treatment is commenced. This will give your cat the best chance for a successful outcome.

**What about checking my pet's titers instead of vaccinating?**

Titers are a measurement of antibodies against a disease that develop in response to a vaccination. However, there are different types of antibodies and not all of them can be measured by methods currently available. To complicate things further, there are some diseases for which we can measure antibodies, but that measurement does not reliably predict protection. The good news is that there are some diseases for which titers have been shown to be a reasonably reliable indicator of protection. These are Canine and Feline Distemper, Canine Parvovirus, Canine Adenovirus, Feline Herpes virus and Feline Calicivirus. Remember, for the latter two diseases, vaccines don't necessarily preclude your pet from developing infection; they just help to minimize the effects of the disease. Currently, there is a lack of standardization of titer values amongst labs. Although we can check rabies titers, it is not considered a legal replacement for vaccinating. For these reasons, titer testing is not currently recommended for the general population of animals. It may be indicated, however, for animals that have had extreme reactions to vaccines or have diseases that may be worsened by vaccinating (i.e. immune-mediated hemolytic anemia). It is important to choose a lab for titer testing that has validated its test results.

**It sounds like vaccines are a good idea for my pet!**

You are correct. The vaccine industry is constantly evolving. There have been many advances made in the area of vaccines and there are more to come! Feel free to contact the clinicians at the KSU-VMTH should you have any questions concerning vaccines for your pet. You can call the number below from **8-5, M-F** to schedule an appointment with us.

**785-532-5690**