VACCINATION FAILURES

One of our greatest frustrations occurs when a cat develops an infectious disease against which it has been vaccinated. There are five basic reasons for vaccination failure.

1. Ineffective Vaccine

The vaccines made by FDA-licensed manufacturers are potent at the time they leave the factory; however, several things may happen to inactivate them. The most common cause of vaccine inactivation is warming of the vaccine during shipping and handling. Temperature control is critical to maintaining potency. If the vaccine gets too warm during shipment to the distributor or while being stored at the distributor, it is inactivated. This is a common problem associated with vaccines purchased by mail or from feed stores. *The buyer has no way to determine whether the vaccines were handled properly during shipment to non-veterinary suppliers*. Veterinarians routinely refuse to accept shipments of vaccine if the vaccine is warm at the time of arrival.

2. Inherent Characteristics of the Vaccine

Although most of our vaccines have a very high success rate in cats, none produce immunity in 100% of cats receiving vaccines. The feline leukemia virus vaccine produces immunity in 80-90% of cats that receive it. The vaccine for some of the feline respiratory viruses produces a high level of immunity, but that immunity lasts only 8-10 months in many cats. The vaccine for Feline Infectious Peritonitis is effective in about 70% of the cats that receive it.

3. The Cat is Too Young or is Unhealthy

It is essential that the cat have a functional immune system in order to respond to the vaccine challenge. If the immune system is very immature, such as a very young animal, or if the patient has a disease which is suppressing the immune system, the vaccine will have little or no effect in stimulating immunity. If the patient has a fever, the immune system will be so "occupied" with the fever that it will respond poorly to the vaccine.

4. Interference Due to Maternal Antibodies

When a kitten is born, it receives immunity-producing proteins from its mother. These are called maternal antibodies. Maternal antibodies protect the newborn from the same diseases against which the mother was protected. Maternal antibodies last only a few weeks in the kitten; their duration is directly proportional to the level of immunity in the mother cat. If her immunity level against rabies, for example, is very high, the maternal antibodies for rabies may last up to four months. If her level is low, they may persist only five or six weeks. As long as these antibodies are present, the kitten is protected; however, those antibodies also block a vaccine challenge. If a kitten receives a vaccination for rabies before the rabies antibodies are gone, the vaccination is blocked and no immunity develops. The same holds true for the other components of the vaccines - the temporary immunity received from the mother can interfere with all of the vaccinations.

Ideally, a vaccination should be given just after the maternal antibodies are gone but before the kitten is exposed to infectious organisms. However, it is not practical to determine just when the maternal antibodies are gone for each of the possible diseases. It can be done, but the expense would be prohibitive. Instead, the kitten is given a schedule for vaccination; the vaccinations are given at regular intervals. The timing of this plan is successful in the vast majority of situations. However, if the maternal antibodies are gone and the kitten is exposed to the disease-causing virus or bacterium before the next vaccination occurs, the patient will usually develop the disease.

The solution to this dilemma would be to give more vaccinations in the series. If the premises are known to be infected with a particular disease-causing agent, we may recommend vaccinating every 10 to 14 days from age six weeks to 16 weeks. The disadvantage of such a plan is the expense. Instead of giving three vaccinations in the series, we would be giving six or eight. This would result in more than double the cost of the routine vaccine series. The potential benefits and risks of extra vaccinations can be discussed with your veterinarian.

5. Overwhelming Exposure

The vaccine against the feline leukemia virus is effective in about 80-90% of the cats that receive it. However, cats that live with feline leukemia virus infected cats often receive exposure to the virus on a daily basis. Under those conditions, many vaccine breaks occur.