To Test or Not To Test

Is Testing for FeLV and FIV in Feral Cats Always Necessary?

Alley Cat Allies
The National Feral Cat Resource

The protocol for veterinarians treating feral cats is relatively standard since ferals are healthy and require only sterilization, vaccination and worming. The hundreds of clinics across the country that treat ferals may differ only slightly in their procedures.

Many people request a blood test for Feline Leukemia Virus (FeLV) and/or Feline Immunodeficiency Virus (FIV) prior to surgery. The veterinarian frequently offers euthanasia as the only option, regardless of whether the cat is symptomatic (displaying signs of illness) or asymptomatic.

Contrary to common assumptions about feral cats, there is no evidence to suggest that the majority of feral cats are in poor health or are any more likely to be infected with FeLV or FIV than domesticated cats. Certainly, kitten mortality is high—at least half of all feral kittens born never reach adulthood. If they do, their immune systems are able to fight off most viral and bacterial infections. Studies show that between two and four percent of the domestic (socialized) cat population in the U.S. is infected with FeLV and that about two percent is infected with FIV. Available data indicate that feral cats have a very similar rate of infection. So how important is it to test feral cats for FeLV and FIV? The answer depends on a number of considerations.

The decision to test or not should be based both on the goals of the humane management program and the welfare of the individual cats. The enormous tragedy of overpopulation is what prompted ACA and similar groups and individuals all over the country to start large-scale sterilization programs for feral cats. Controlling breeding through non-lethal means is and has always been the overriding goal of all of these programs. In addition to controlling breeding, neutering has the added benefit of improving the quality of the cats' lives by reducing or eliminating behaviors like fighting, mating and roaming that put them at risk of becoming injured, getting killed, or contracting FeLV and FIV.

Before making a decision about testing, it is important to assess the cats you are planning to trap and formulate a management plan. Are the cats truly feral or are they stray? Will the cats go back to the colony or (if stray or tamable) be homed? Clearly, tamable kittens and strays should be tested before being placed in foster or adoptive homes. But what about untamable adults who will be returned to the colony site? Testing may be warranted in some situations and not in others. Testing a colony with a high mortality or disappearance rate and/or obviously unhealthy members may be appropriate, whereas testing an apparently healthy, flourishing colony may be unnecessary. Also essential to the decision-making process is an adequate understanding of the nature of both viruses and the limitations of the tests used to detect them.

Feline Leukemia Virus (FeLV)

Feline Leukemia Virus is a retrovirus belonging to the subfamily *Oncovirinae*, which means it is a cancer-causing virus. In addition to causing feline leukemia, FeLV suppresses the cat's immune system, leaving the animal vulnerable to a variety of opportunistic diseases.

Infected cats shed FeLV primarily in their saliva, although the virus may also be present in the blood, tears, feces or urine.

Other modes of FeLV transmission include mutual grooming, sharing food dishes and in utero transfer from a mother cat to her kittens. A mother cat can also transmit FeLV to her kittens through infected milk.

Fortunately, FeLV cannot survive very long outside a cat's body. The virus loses its infectivity within minutes or hours if left at room temperature, and it can easily be destroyed with most disinfectants and detergents.

How FeLV exposure affects a cat

One of three things can happen when a cat is exposed to FeLV. The cat may experience a transient viral infection and then fight off the virus, developing future immunity. There is evidence that up to 70 to 80 percent of adults exposed to FeLV survive the initial stage of infection and acquire immunity. Kittens under 16 weeks are much less likely to overcome a viral attack.

Alley Cat Allies • 1801 Belmont Road, NW, Suite 201 • Washington, DC 20009-5147
alleycat@alleycat.org • www.alleycat.org *or* www.pets911.com

If the cat does not overcome the initial infection, the virus eventually moves to the bone marrow, and the cat becomes persistently infected, or viremic. Even though a persistently viremic cat may be asymptomatic for several years, he or she will usually develop FeLV-related diseases at some point. A persistently infected cat sheds the virus throughout his/her life, becoming a source of infection for other cats with whom he/she comes in contact.

A third possibility is that the cat is able to produce an effective immune response to the infection yet continue to harbor the virus somewhere in the body. A latently infected cat does not appear to be susceptible to FeLV-related diseases and does not shed the virus the way a persistently infected cat does, so there is no risk of infecting other cats. The latent phase of a FeLV infection seems to be temporary for most cats, who become free of the virus within a few years after the infection occurs. However, latently infected cats do occasionally became persistently viremic.

Testing for FeLV

There are two types of blood tests available for detecting FeLV: the enzyme-linked immunosorbent assay (ELISA) and the immunofluorescence assay (IFA). An ELISA detects the presence of FeLV during the initial, or transient, stage of infection, whereas an IFA test detects the virus during the second stage, after the bone marrow has become infected (an ELISA can also detect the virus at this stage). The most widely used ELISA, called the SNAP test, is manufactured by IDEXX Laboratories. A SNAP test can be performed within a few minutes at a veterinary clinic.

Since it is possible for an ELISA to register a false positive result, a cat who tests positive should be retested in eight to twelve weeks, using either an IFA test alone or a second ELISA followed by an IFA test. A cat exposed to FeLV may test positive during the transient phase of the infection and then test negative if the virus is overcome. It is likely that many cats euthanized because of a positive test result were tested during this phase and would have eventually overcome the infection. A cat who tests positive using an IFA will likely remain positive for life.

Note that a cat in the initial stage of FeLV infection may actually test negative. To avoid a negative test result on an infected cat, test the cat at least 90 days after the cat's last possible exposure to the virus. Unfortunately, there is no test available to detect a latent FeLV infection.

Treatment

Although there is no known cure for FeLV, supportive care, including good nutrition, minimization of stress and prompt treatment of illness, can improve the health of and prolong the life of FeLV-infected cats. There are also several new treatments, known as immunotherapies, that apparently boost an infected cat's weakened immune system. For more information about immunotherapy on the World Wide Web, visit "Newer Methods for Treating FeLV+ Cats" at www.angelfire.com/il/felv.

Feline Immunodeficiency Virus (FIV)

Feline Immunodeficiency Virus like FeLV, is a retrovirus. Unlike FeLV, FIV does not cause cancer and is in the lentivirus subfamily rather than the Oncovirinae family. FIV results in suppression of the cat's immune system, compromising the animal's ability to fight off infection. FIV-infected cats are vulnerable to a wide array of bacteria, viruses and fungi that normally are harmless to a healthy animal.

Fortunately, FIV does not seem to be transmitted as easily as FeLV. Evidence suggests that the primary mode of transmission is through bite wounds. This explains why the cats most likely to become infected are free-roaming, unneutered males prone to territorial fighting. FIV does not appear to spread through casual contact among cats, so it is possible to keep a FIV-infected cat in the same household as a healthy cat with little risk of transmission, provided the cats tolerate each other and are not fighting. It is important to note that kittens are unlikely to acquire FIV from an infected queen, either through in utero transmission, maternal grooming or nursing.

Progression of the virus

After initial infection, the virus spreads to the cat's lymph nodes, causing them to become enlarged. The cat may develop a fever that lasts for several days and may experience a drop in the white blood cell count. During the second stage of infection,the cat can be completely asymptomatic and remain healthy for up to several years. During the third, chronic stage, the cat begins to develop signs of immunodeficiency and may suffer from and eventually succumb to a number of secondary and

opportunistic infections, including gingivitis, periodontitis and respiratory tract infections. FIV-infected cats can also develop persistent intestinal and urinary tract infections, neurological problems, kidney disease and tumors.

A diagnosis of FIV is not necessarily cause for alarm. Since the virus has a relatively long incubation period, a cat who tests FIV positive may live happily and healthily for several years. An example is "Adam," adopted as a kitten by ACA Director Louise Holton from the first colony we stabilized in 1990 (see sidebar).

Testing For FIV

Infection can be detected by testing for the presence of FIV antibodies. In some cases, detectable FIV antibodies may not appear until eight to twelve weeks after exposure. The IDEXX SNAP test can be used to detect FIV antibodies (a SNAP combination kit can test for both FeLV and FIV using the same blood sample). Since false positive results do occur, a positive test should be confirmed with a second test, preferably with a more specific test like the Western blot (WB). The WB or immunoblot test also detects the presence of FIV antibodies, but is more time consuming than the ELISA and usually requires laboratory analysis. Remember that kittens who test positive are not necessarily infected. If a kitten tests positive, the test is probably detecting antibodies passed from an infected mother to the kitten through colostrum. Positive kittens should be retested between four and six months of age, when any antibodies obtained from the mother cat will have disappeared.

Care and treatment

Although there is no cure for FIV, veterinarians can treat or at least alleviate the opportunistic infections associated with the virus. And good supportive care can improve the quality of an FIV-infected cat's life. Holistic veterinarians recommend nutritional support3/herbs, vitamins and homeopathy3/and other alternative treatments such as acupuncture to help strengthen an animal's impaired immune system. For more information about holistic treatments, see The New Natural Cat, by Anitra Frazier (also provides information about treating FeLV) and Dr. Pitcairn's Complete Guide to Natural Health for Dogs and Cats by Richard Pitcairn, DVM and Susan Hubble Pitcairn.

FeLV and FIV testing in high volume spay / neuter programs

In 1991, ACA formed guidelines for veterinarians and caretakers working with feral cats that included a recommendation to test the first 20-25% of the colony and to test a mother cat to determine the status of her kittens. Many programs have evolved since that time, including large-scale feral cat spay days like those run by the Feral Cat Coalition in San Diego, Operation Catnip in North Carolina and ACA in the Washington, DC area. Experience has led many of those involved in these and similar programs to question the efficacy of testing feral cats for FeLV and FIV. Some have even chosen to discontinue testing of feral cats altogether. The factors they considered in deciding not to test included:

1. The percentage of feral cats infected with either FeLV or FIV is low?two to four percent are infected with FeLV and about two percent with FIV.

2. Sterilization contains the spread of viruses like FeLV and FIV. Since neutering reduces or eliminates the primary modes of transmission, such as fighting and mating, infected cats pose little risk to other cats.

3. Infected cats are often asymptomatic and can remain healthy for several years. In addition, since testing is not always accurate, healthy cats may be euthanized unnecessarily. Moreover, removing and euthanizing a cat who tests positive will not necessarily prevent spread of the infection within the colony since it's likely that the other colony members have already been exposed to the virus.

4. In some circumstances, the cost of testing may outweigh its effectiveness and even hinder the success of a sterilization program (see "Operation Catnip"). The effectiveness of these large-scale sterilization programs indicates that the goal of spaying and neutering as many ferals as possible can be met without compromising the health or well being of the cats. It is important to remember that we are in the midst of crisis?shelters all over the country are killing stray and feral cats at an alarming rate. We need to focus our energy and resources on preventing the births of more homeless kittens, most of who don't survive their first year of life. Increasing the number of animals who are spayed and neutered is the single most effective way to help control the crisis and reduces the suffering of srtay and feral cats.

References & Resources

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Interview with Operation Catnip's Dr. Julie Levy

ACA's Becky Robinson interviewed Dr. Julie Levy and asked her about Operation Catnip and its policy on testing feral cats for FeLV and FIV. Dr. Levy is a graduate of the NCSU College of Veterinary Medicine and a diplomate of the American College of Veterinary Internal Medicine, with an emphasis in feline infectious diseases.

Q: Tell us a little about Operation Catnip and its relationship with NSCU's College of Veterinary Medicine.

Dr. Levy: We have one clinic a month. The clinic staff consists of 40 volunteers: 6 of them vets and the rest of them vet students, veterinary technicians, and cat lovers. We spay/neuter 100-130 cats per clinic. The cats are 3 months old and older. The benefits of the partnership between the College of Veterinary Medicine and Operation Catnip include valuable hands-on experience for veterinary students, public service to the community, and enhanced public image of our spay/neuter program. The collaboration also provides an excellent opportunity for good research on feral cats (specifically on trap-neuter-return) which is so lacking here and elsewhere. Several research laboratories at the school utilize the tissues discarded at surgery, thus reducing the number of animals purchased for research.

Q: What percentage of the ferals (from OC) has tested positive for FeLV and FIV?

Dr. Levy: In North Carolina, 5% of our feral cats are FeLV positive and 2% are FIV positive. This is typical for other areas of the country and for pet cats.

Q: Why did you (and the board of OC) decide to stop testing feral cats for FeLV and FIV?

Dr. Levy: Last year, Lisa Kaplan and I spent a day in San Diego with the Feral Cat Coalition. Although our goals were the same, to spay and neuter as many cats as possible, their program was much more efficient in terms of the number of cats sterilized and the cost/cat. We took a hard look at the differences between our programs. We realized that a lot of our money and efforts were going into areas that did not increase the number of cats sterilized. Testing was just one of these activities. Of the $16 we spent on each cat, $11 went to testing. Because the infection rate was low, we were spending about $200 to identify each positive cat. That $200 could have funded sterilization of 40 more cats. An entire volunteer station was devoted to collecting blood and running tests. Finally, the euthanasia of healthy positive cats created an ethical problem for some of the caretakers and volunteers, who felt that they were betraying the cats.

Q. Do you feel that not testing will have an adverse result in managed colonies?

Dr. Levy: Our general experience has been that the infection rates in colonies are low. However, we have had a few in which up to 30% of the cats were FeLV positive. This is more likely to occur in large colonies in which a lot of kittens are being produced. Ironically, we have seen this occur most frequently in colonies fed, but not sterilized, by a well-meaning caretaker. Presumably the unlimited availability of food and shelter increases the reproductive capacity of the colony, leading to the birth of more infected kittens. The "baby-sitting" behavior of queens also leads to the spread of FeLV. It is very common for the nursing litters to be cared for communally. Since FeLV can be spread through the milk, or even from infected kittens to the queens that care for them, the simultaneous presence of multiple litters favors the spread of FeLV. It may be reasonable to test cats from unthrifty colonies. Certainly kittens removed for taming should be tested before being placed in new homes. One recommendation that is not logical is to test a sample of the colony for the presence of these viruses; their prevalence is too low for representative sampling to be valid.

Q: Do you feel that it is necessary to test ferals who are going to be relocated from their original site to say a farm or horse stable?

Dr. Levy: I would leave the decision of whether to test relocated cats up to the two parties involved. There may be some increased fighting when new cats disrupt the local social structure. On the other hand, are the resident cats also tested and sterilized? My primary recommendation would be to minimize relocation efforts as much as possible.

Q: How do you respond to the concern that untested colonies will pose a risk to companion animals?

Dr. Levy: Untested colonies pose no more risks to companion animals than do freeroaming pet cats. There is a common perception that feral cats have a higher rate of FeLV and FIV than do pets. Our research on more than 1,000 feral and pet cats in California and North Carolina, and published research in the veterinary literature show that this is not true. In reality, it is unneutered cats that wander, fight, and reproduce that are most likely to spread these diseases, regardless of whether they are in feral colonies or in private homes. ■