
Feline Leukemia Virus (FeLV)

What is FeLV?

FeLV, or Feline leukemia virus, is a contagious, viral disease of cats. In addition to causing leukemia, it has been associated with various other types of cancer, anemia, and immune suppression leading to increased susceptibility to various infectious diseases. Although cats may clear initial infection, there is no cure for persistent infection and it is ultimately fatal.

Who gets FeLV?

It appears that cats are the only species susceptible to infection with FeLV. Kittens are at significantly higher risk for contracting the disease than adult cats.

How is FeLV spread?

FeLV is most commonly spread via the saliva of infected cats, either directly or by contaminated articles such as food and water dishes or toys. FeLV can also be present in other secretions such as urine or feces, but this is less common. FeLV can be spread transplacentally from mother to offspring, but spread via nursing or grooming is more common. Airborne spread is not a concern. FeLV is not very durable in the environment. It is inactivated by most commonly used disinfectants. It can survive for up to 48 hours in a moist environment at room temperature.

How is FeLV Diagnosed?

Blood tests are available for screening for FeLV. The most commonly used test is the ELISA test, which looks for viral antigen (protein) in the blood. This is available as an in-house kit. It is imperative to follow the instructions for whatever test is used exactly, as the consequences of both a false positive and a false negative test are potentially severe. Staff members performing the test should be trained and periodically evaluated.

How accurate is the test?

The blood test itself is quite accurate, but not perfect. Because cats can be transiently infected, it is possible that a cat will initially test positive for FeLV, and then recover and test negative at a later date. In most healthy cat populations FeLV is quite uncommon, and this leads to an increase in the relative number of false positive results. At minimum, all positive ELISA tests should be repeated to ensure that correct technique was used; if whole blood was used for the initial test, it should be repeated on serum. (See below for additional information on testing.)

The blood test may also falsely identify recently infected cats as negative. To be absolutely certain, cats must be tested 1-3 months after their last known exposure. False negatives are more common when samples other than blood (e.g. saliva, tears) are used and when multiple samples are pooled.

What additional tests are available?

Cats testing positive by the ELISA test on serum should ideally be retested either using an ELISA test from a different manufacturer or by sending the appropriate sample for an IFA test at a diagnostic laboratory. If both tests are positive, the cat is very likely persistently infected. To be absolutely certain, cats can be held and retested after 30 days if resources are available and the cat can be appropriately housed and isolated (for the protection of the cat and population; see below). Because the IFA is less sensitive (more prone to false negatives) than the ELISA test, a negative IFA result in a cat testing positive ELISA can not be taken as an indicator that the cat is not infected. If the ELISA test is positive but the IFA results in a negative result, both tests can

be repeated in 30 days. If this strategy is used, a plan should be made at the outset and clearly communicated to staff and foster parents regarding what will happen with cats that test persistently positive after the 30 day hold. A PCR test can also be run to help resolve any conflicts in the tests. PCR is very sensitive, so a negative test result run by a reputable laboratory indicates infection is unlikely. However, because PCR testing is very sensitive to laboratory error, correct sample handling and laboratory quality are extremely important.

Strategies for FeLV testing

Unlike FIV, testing for FeLV may be performed at any age. As mentioned, infection may take up to 1-3 months to develop, so results in young kittens are slightly less reliable. Samples should be tested individually; testing representatives from litters or pooling samples significantly decreases test accuracy. Depending on agency resources and priorities, FeLV testing may be performed at various points:

- All cats and kittens upon admission or prior to being placed for adoption
 - This strategy is most practical for shelters that rarely euthanize adoptable cats
- At the time of adoption
 - This can be offered as a service with or without a fee
 - May be more practical than testing all cats in shelters where significant numbers of cats are euthanized rather than adopted
 - Risks heartache when adopters and staff have already become attached
- Prior to placement in group housing: This is a must for shelters that mix cats from different litters in group housing rooms
- Prior to investment such as foster care, treatment for URI, spay/neuter surgery
 - This is always ideal, but especially important in populations where FeLV is relatively common. It is heartbreaking to foster a kitten or treat for URI for weeks only to find out the cat is FeLV infected.

For More information on the FeLV testing procedure visit our diagnostic testing information page.

What is the prognosis for cats with FeLV?

FeLV infection can cause various types of cancer, especially lymphoma and, as the name implies, leukemia. It can also cause anemia and deficiencies of other blood cell lines, as well as causing general immunosuppression that makes the cat vulnerable to numerous infectious diseases. Acutely infected kittens may have several years of good quality life before developing signs of disease, and some individual cats may live much longer. However, 50% of infected cats living in multiple cat households will die within two years of contracting the disease, and that number increases to 80% after three years.

Treatment consists of good nourishment, protection from stress, and management of secondary conditions. There is no treatment that has been shown to be effective in curing FeLV infection.

These are important considerations when considering rehoming an FeLV positive cat. Clearly a shelter or multiple cat rescue environment is a much less than ideal situation for a cat with a compromised immune system. Apart from the risk to other cats, the positive cat itself is at great risk for exposure to infectious agents that may be inapparent in cats with intact immune systems but can be devastating to an FeLV positive cat. These conditions range from many kinds of infectious diarrhea to upper respiratory infections.

Prevention of FeLV

One of the most important factors in preventing FeLV is identification of positive cats and removal from the general population. This approach has greatly reduced the prevalence of this disease in most communities over the last twenty years. If FeLV positive cats are to be maintained in a shelter environment, the following precautions should be taken:

- Clearly identify FeLV positive status on cage and paperwork.
- House in individual cage.

- Do not allow access to general cat areas such as play-rooms or get-acquainted rooms.
- House away from kittens and isolation wards where cats are more likely to be shedding infectious disease.
- Use separate dishes and toys, or clean dishes thoroughly after use with hot water and an effective disinfectant.
- Immediately clean all surfaces with which an FeLV positive cat had contact with an effective disinfectant.
- Wash hands after handling FeLV positive cats.
- If FeLV positive cats are rehomed, adopters should be counseled to keep the cat strictly indoors, either isolated or in contact only with other FeLV positive cats. Rescue households that focus on FeLV positive cats and have many such cats should be monitored carefully and have a well developed health care program, as infectious diseases in addition to FeLV can quickly get out of control in such a setting.

Should cats be vaccinated for FeLV?

A vaccine is available for FeLV. It is not 100% effective, so there is still some risk to introducing an FeLV positive cat into an environment with vaccinated cats. The vaccine is not recommended for cats that are at very low risk for contracting the disease, such as strictly indoor cats. Therefore, this vaccine is generally not recommended in a shelter except under unusual circumstances. Rather, the new owner and their veterinarian should decide whether the vaccine is appropriate for the individual circumstance.

Reprinted from the UC Davis Koret shelter medicine website (www.sheltermedicine.com)