



Feline Leukemia Testing: One and Done for Everyone

Questions & Answers

Q: I really have a problem with the AAFP recommendation to test all cats in private practice. The logic of not testing every cat in a shelter still holds for the general population i.e. at a low prevalence, positive predictive value for the test is very low. I found the new guideline really disappointing (especially in a spectrum of care/accessible care framework). Would be interested in Dr. Levy's response.

Dr. Levy: *This is a complicated topic. There is no question that testing and segregation has led to a marked decrease since the 1970s in FeLV prevalence in countries where it is practiced. And there is no question that FeLV is infectious and steals many years from cats' lives. The prevalence of FeLV is now stabilized at 1-3% and has stopped decreasing. On the one hand, this could be considered a low prevalence, and on the other hand, it is still one of the most common infectious diseases of cats affecting 10's of thousands of cats every year in North America. More rigorous test and segregation programs might drive down the prevalence even more. You are right that testing in low-risk populations has diminishing returns and lower positive predictive value. We should look at some of the literature regarding test specificity with caution, as the "gold standards" were often less reliable than the tests being evaluated. Nonetheless, the principles you mention are true. You make a good point about how the value of retroviral testing should stack up, especially in the access to care spectrum. I would say that retroviral testing, like other things such as heartworm prevention, would fall more in the category of 'medically sound,' but not as essential as FVRCP/rabies vaccination. It would be helpful to have lifestage guidelines tailored to the access to care environment since most of the guidelines available today are aimed at the 'limitless resources' level. One point of conflict that has left me unsettled is that when we stop testing in shelters (for good reasons), the cost of testing in private practice is higher and the chance of a cat ever getting tested is lower. So many trade-offs! Thanks for grounding this discussion in some important real-world issues.*

Q: What is your opinion on FIV/FeLV dual positive cats in terms of shelter management?

Monica: *We do not test for FIV at APA! but if we know a cat to be FIV+, in addition to FeLV+, we don't modify medical care, adoption policies, or housing protocols. The double positives are housed with FeLV+ cats and the FIV is, of course, disclosed to adopters, as well.*

Q: What are recommendations for cat rescues? Also, how does maternal antibody interference work for these guys?

Monica: *I recommend the same testing protocols for rescues as shelters. As an ELISA test measures antigens, not antibodies (like the FIV test) they are not a consideration when FeLV testing. This is why you can test neonates for FeLV but must retest kittens for FIV when older.*

Q: When we say "prolonged close contact" what are we considering that to be? 1 month, 6 months, years? (mostly wondering because of co-housing in shelters, which is typically short period of time)

Monica: *At APA!, our criteria is close, personal contact for 72 hours or longer. Close personal contact means the cats were freely interacting where they could have groomed one another, shared dishes, and/or mated.*

Dr. Levy: *This hasn't been studied, so there isn't a universal definition. I'd consider any direct exposure as "close contact," to be on the safe side.*

Q: AAHA recommends felv for shelter kittens as a core. What should we do?

Monica: *I do not recommend shelters give the FeLV vaccine as a part of the standard vaccine protocols.*

Dr. Levy: *There is a discrepancy between AAFP's vaccine guidelines (which recommend FeLV vaccines) and the retrovirus management guidelines (which do not recommend FeLV vaccines) for FeLV vaccination in shelters. FeLV vaccines require several doses, and several weeks to be effective, and then offer only partial protection. They are also more expensive than core FVRCP and rabies vaccines. We are always seeking to decrease the length of stay in shelters and to be sure shelter resources are invested for the most impact. I only recommend FeLV vaccinations for cats in long-term shelter care, such as sanctuaries.*

Q: Dr Levy mentioned FeLV vaccine for negative cats living with positive cats. I thought vaccination didn't totally prevent FeLV infection? Incorrect?

Monica: *No vaccine is 100% effective, which is also why I do not recommend positive cats are deliberately introduced to live with negative cats.*

Dr. Levy: *While it is correct that FeLV vaccines are less effective than panleukopenia and rabies vaccinations, partial protection is better than no protection. I never purposely add an FeLV-infected cat to a negative household, but sometimes they end up that way for various reasons. In those cases, we can do our best to protect the negative cats by vaccinating them.*

Q: I have heard it mentioned that some feel that cats over maybe 2 or so were not felt to need FeLV vaccine as they're less susceptible as they get older...?

Monica: *[A University of Glasgow study](#) reports that up to 85% of cats between the ages of 4 months and 1-year recover from challenge exposure naturally, but the vaccine may "tip the balance in favor of recovery by priming the immune system to generate robust cellular and/or humoral responses." (This linked paper is fascinating reading that I highly recommend!)*

Dr. Levy: *While adult cats are more resistant to infection than kittens, there is also evidence that prevalence increases with age and that cat bite abscesses (which occur mostly in mature adults) are a risk factor for transmission. That suggests that adults in risky environments are still at risk.*

Q: For a split litter (some positive/some negative kittens), do you inform the adopter that the negative kittens were exposed to FeLV?

Monica: *I am always in favor of transparency: if we know something, the adopter should also know.*

Dr. Levy: *I do believe in full disclosure and transparency.*

Q: What is the reported sensitivity and specificity for the IDEXX SNAP test?

Monica: *100% and 100% [per this study](#) and confirmed with multiple others.*

Q: Is there a reason you don't recommend Witness or other brands of FeLV or combo tests?

Dr. Levy: *We do believe that the IDEXX snap test is the most accurate, the most sensitive and specific, but it is also more expensive, and it's bulky and it has to stay in the fridge. If that test doesn't work for you and you need an alternative, a close second best would be a Zoetis Witness test.*

Q: I thought the Zoetis Witness test was considered acceptable if the FeLV test was negative, but if a cat has a positive FeLV on Witness there was a higher risk of false-positive so retesting with IDEXX was recommended.

Monica: *Lots of studies have been done to test the specificity and sensitivity of point-of-care tests. [Here's a good one!](#) Because the ramifications of testing can be severe, at APA!, we only use the IDEXX brand and require an IDEXX test for incoming transfer requests of cats believed to have FeLV.*

Q: If a cat was adopted out (was not tested in shelter), and tested positive at private vet. Owner is now upset and wanting a confirmation test. It is safe to say that test is positive (as long as POC test was used) and they should house the new addition separate from the other cats?

Monica: *There are many point-of-care tests, and accuracy is dependent on the brand and if it was accurately used. IDEXX remains the most sensitive and specific point-of-care test. It would be responsible to house the cat in question separately until the situation is sussed out.*

Dr. Levy: *This is a situation in which the IDEXX laboratory test panel might be indicated. The in-lab FeLV antigen test combined with the in-lab quantitative FeLV PCR test can provide a lot of information.*

Q: Do you think that the development of an antibody test for FeLV would be valuable in the sense that a negative test should be a true negative (assuming high sensitivity/specificity)? ie. negative would indicate the lack of exposure to the virus.

Dr. Levy: *We collaborated with a research group in Glasgow to study the antibody types and levels in the cats in our APA! Study. While interesting, it did not add much to clinical decision*

making regarding the true status of the cats or how to manage them. You can read the study [Measuring the Humoral Immune Response in Cats Exposed to Feline Leukaemia Virus](#).

Q: What about the IFA Test and Dr. John Hardy? Why is IFA not recommended anymore?

Dr. Levy: *A positive IFA test from a good lab like Dr. Hardy's National Veterinary Lab was consistent with persistent (likely progressive) infection. However, it missed many infections, especially ones trending toward regressive. I have replaced the use of IFA with quantitative PCR since it became available.*

Q: These comments regarding confirmation w IFA (i.e., not to use) for private practice either?

Monica: *Correct, nor in private practice nor in shelters.*

Q: Testing plasma from whole blood, yes?

Monica: *Plasma was sourced from whole blood, yes.*

Q: Related to my Q above - I am confused about the APA! recommendation to now test all shelter cats from 6 weeks, after several years of recommendations from many experts *not* to test everyone. Or is this intended to describe APA! policies vs recommendations for others?

Monica: *In Slide 7, we discussed that all shelters may not test everyone at intake, and this is acceptable and based on your resources and community. We test all incoming cats at APA! because of our ongoing research, high community live release rate, resources available, and to provide better care to our positive cats. Not all shelters are able to do this, and that is okay!*

Q: If we have discordant test results, then what?

Monica: *Discordant cats should be managed as positive cats, for shelter purposes.*

Q: How do you house a discordant cat? Can they ever be housed with positive or negative cats or would they need to be the only cat in the home?

Monica: *Discordant cats should be managed as positive cats, for shelter purposes. That means housed solo, or with other FeLV-positive cats.*

Q: Is there less likelihood of provirus in the leukocytes than other cells? Or, are we detecting it in persistently viremic cats only? Wondering why we sometimes have false negatives on PCR.

Dr. Levy: *Some false negatives are due to a low amount of viral DNA circulating in the blood but still present in other tissues. Or we may draw the sample at a time when the viral DNA level is*

below what the test can detect. Or the viral strain may contain mismatches in the DNA sequence.

Q: For general practice, is it correct to state that a kitten or cats that are tested positive are either regressive or progressive, no chance to be abortive. Thus, needed to be treated as a FELV positive the household

Monica: *There is a chance for the cat to become abortive, as well. The quantitative PCR is the only practical way to help assess the stage of infection.*

Q: So the PCR test is able to show if it is abortive versus progressive?

Monica: *Quantitative PCR tests, specifically, are able to help assess the stage of infection, including abortive versus regressive.*

Dr. Levy: *It's difficult to prove that a cat has fully aborted infection since we are only testing one compartment - the circulating blood. A cat with regressive infection may test negative in the blood, but still harbor some virus in other organs.*

Q: A lot of shelters/low-cost clinics aiming for access to care tend to only have FIV/FelV combos. In these situations where you're not at a full service and may not see these patients again, do you recommend FIV/FelV combo, or postponing FIV/FelV until over 6 months? Assuming FelV only isn't available.

Dr. Levy: *I would not postpone testing since cats can be tested at any age and many cats do not receive regular veterinary care. The current visit may be the only chance for a cat to get its full wellness care for several years. The only age-related issue for testing is with positive results for FIV in cats less than 5 months old. Those may be due to maternal antibodies from infected mother cats, but this is such an uncommon occurrence that it is not necessary to delay testing until 6 months of age.*

Q: If SNAP has one result and PCR has another result, is that how the cat is labeled?

Dr. Levy: This would be considered discordant test results. The true status of the cat can be difficult to determine. You can retest the cat over time but might never resolve the true status. In a shelter, I would manage this cat as a regressive FelV infection.

Q: Our shelter has had several cats having a positive SNAP test, and up to 3 negative PCR tests— then what?

Dr. Levy: *These are discordant results and difficult to know the status with certainty. If all of these tests have been performed at IDEXX and there were multiple positive IDEXX SNAP tests, I would manage as a regressive infection.*

Monica: *You may have an abortive cat, or a regressive cat with infection levels too low to detect, or focal infection ([which you can read more about here.](#))*

Q: Would you recommend testing for FIV once a kitten hits that 6-month mark, or if you're just running FeLV on kittens, is that the only test you recommend?

Monica: *The FeLV-only test is available via IDEXX and substantially less expensive, so worth looking into if you do not wish to test for FIV. As the majority of kittens will test negative for both retroviruses, you could offer the test at any age and inform kitten owners that a follow-up is needed if they display FIV+ results and provide education at that time that FIV is easily managed. As a shelter, I see no value in running routine FIV tests, at all, at any age.*

Q: Should an FELV abortive cat ever be vaccinated?

Dr. Levy: *In theory, a cat with abortive infection would be immune and would not need a vaccine. It's difficult to know for sure a cat has an abortive infection, however.*

Q: Is there a webinar on feline herpes that we can go back and watch?

Monica: *Dr. Kate Hurley is widely acknowledged as the world's leading expert on feline URI and she has [many great webinars](#) and studies available on this subject.*

Q: We retest positives in young kittens because - though we adopt out FeLV cats/kittens - their length of stay is a *lot* longer. So, while it's not a life/death decision, it is a "you'll get out in a week or you'll get out in 6 months" decision. But we are waiting 3 months to re-test, so their adoption is getting delayed if they test positive at intake. Would you recommend a PCR instead?

Monica: *My recommendation would be to see what we can first do to drop that LOS, which has a very real financial cost associated, increases the risk of shelter illness, and causes our kittens to grow into cats while at the shelter thus further reducing adoptability. Can you waive adoption fees on FeLV+ cats? Increase and improve marketing and customer service? Offer complementary medical care as related to the virus to reduce adopter fears? The cost-savings of no longer hanging onto a kitten for months and running repeated tests could help offset waived fees or post-adoption medical expenses if you move to a one-and-done test and adopt the kittens out immediately.*

Q: When providing complimentary medical care for FeLV-ies what conditions are considered related to the virus?

Monica: *You can find our post-adoption treatment coverage information [here](#). This is covered with adopters at the time of adoption counseling.*

Q: We also adopt out FeLV cats into homes with non-FeLV cats (or vice versa) - we require proof of FeLV vaccines for the negative cats. Thoughts?

Monica: *We do not recommend this as no vaccine is 100% effective and FeLV+ cats can be adopted successfully into homes without negative cats.*

Q: I am on the A.P.A. website. Is there a stats tab? How many FeLV+ cats have been adopted in the past few years

Monica: *APA! Has adopted over 2,000 FeLV+ cats, over 350 annually since 2018.*

Q: Where can we get the study and statistics stated by the APA?

Monica: *Here are a couple:*

[*Outcome of cats referred to a specialized adoption program for feline leukemia virus-positive cats*](#)

[*Feline Leukemia Virus p27 Antigen Concentration and Proviral DNA Load Are Associated with Survival in Naturally Infected Cats*](#)

Q: Is there a link to the feline marketing program?

Monica: Here is the [Feline Marketing Self-Guided Online Course](#) as well as [Feline Matchmakers](#).

Q: What is your recommendation about adopting out FeLV+ cats through our barn cat program?

Monica: *At APA!, we do not test the cats destined for our Working Cat Program. If a working cat comes to us with known FeLV, we will find a suitable location with no other known cats and no known cats within reasonable distance to the new home (if outdoor versus a warehouse, shop, or other indoor working cat home.)*

Dr. Levy: *In our [working cat program](#), cats are tested for FeLV as they reside together in a catio for a few weeks while awaiting placement. A positive cat would be adopted to a working cat home without other uninfected cats.*

Q: With this new information have the Asilomar categories updates? Ours still has FeLV listed as unhealthy/untreatable.

Monica: *For this and many other reasons, I do not rely on Asilomar reports to determine live release rate. I endorse the noses in, noses out method.*

Q: How young would you test a kitten?

Monica: *Kittens can be tested as young as one-day old.*

Q: What protocol have you used for FIP treatment

Monica: *At APA!, we do not provide FIP treatment in-house due to a lack of regulation on the available drugs, yet. Our fosters are advised on how they can obtain treatment, which private DVMs in the area might assist, and our shelter veterinarians oversee the care and welfare of the cat while treatment is ongoing.*

Dr. Levy: *We refer people to the FIP Warriors Facebook group for information on treating cats with FIP. The treatment is the same for cats co-infected with FeLV or FIV.*

Q: We “surgerize” a lot of shelter kids with FeLV and have always done them last and changed tubes/bags between each cat in addition to wearing PPE, etc. I understand the lack of PPE but what are your thoughts on changing tubes/bags between negative and positive cats?

Dr. Levy: *Assuming you are referring to the breathing circuits, changing them out is not a bad idea, although I am not aware of any research on the amount of virus that gets that far into the circuits. Any endotracheal tubes and masks, which have a higher exposure to saliva and respiratory droplets than the circuits, should be changed between each patient (FeLV or not) to reduce exposure to more common pathogens such as herpes, calici, panleukopenia, and bacteria.*

Q: Are regressive cats contagious?

Monica: *Review Slide 4 for a primer on the three most common stages of FeLV infection. Unless these cats become reactivated, they are not contagious except through blood transfusion.*

Dr. Levy: *Based on studies conducted in small numbers of cats with experimental FeLV infections, regressive cats are not believed to shed sufficient virus to be infectious to other cats. However the status of a regressive cat can change over time.*

Q: Since you mentioned the FIP treatment that can be beneficial to FeLV-pos cats, too, where do we find more information and protocols on it?

Monica: *Check out the Facebook group “FIP Warriors 5.0”.*

Q: I have myself 10 cats. 7 have been tested in the past and were negative. I am planning to test my three other cats soon. My questions: should I test again my 7 cats? Should I vaccinate all of them? 1 of my cats goes outside and have always been vaccinated but I never tested him (I have to test him soon). Thank you so much! I can't attend the forum sorry can you send me an email. Thank you!

Monica: *This would be a great question for your personal veterinarian who knows your cats, your household, and the health and risk level of each.*

Q: Question for Dr. Levy: 95% of our kittens that are positive at 3 weeks are negative 3 and 6 weeks later. Are you saying we tell potential adopters that kittens should be considered positive for life????

Monica: *How you are re-testing them is unknown here, but these cats may actually be regressive, not negative/abortive.*

Dr. Levy: We have a lot to learn about neonatal kittens. We have also observed that neonates with positive tests may be more likely to revert to negative than older kittens. We can also miss for FeLV infections in neonates if they are not retested at an older age. It is possible that neonates are more likely to have abortive infections or maybe they are even getting antigen from their mom without getting the virus itself. Adequate studies have not been done in these ages. I would at least inform adopters of the history of a positive test and that they are likely (but not assured) to remain negative.

Q: I would like more information about how to successfully market FeLV cats to get them adopted

Monica: *Great! A good place to start is AmericanPetsAlive.org where you can enroll in all of our free self-guided online courses like Feline Marketing, Managing a FeLV Program, Feline Matchmaking, and download lots of great protocols under the Resources tab.*

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