JUST THE FAQS - NEW CHALLENGES AND OPPORTUNITIES FOR FIV
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1. Is the prevalence of FIV changing like it is for FeLV?
Because testing is voluntary and results are not collected into a central database, determining the true prevalence of FeLV and FIV is difficult. Widespread use of in-house testing for FeLV in clinics and shelters, test and removal programs in catteries, increased sterilization of cats, and FeLV vaccination have contributed to reduce the apparent prevalence of FeLV since testing became available in the 1970s. Evidence that this is a real trend exists in the lower rate of lymphoma diagnosed in cats in the past decade, particularly those forms which are associated with FeLV, such as thymic lymphoma. It is more difficult to know if the same trend is occurring for FIV. The virus was only discovered in 1986, and current estimates suggest less than 10% of cats are ever tested for FIV. The first FIV vaccine became available in 2002.

2. I believe in the recommendation of the American Association of Feline Practitioners to test all cats for FeLV and FIV. The feral cat trap-neuter-return group that I work with has asked me to sterilize feral cats without testing them. Doesn’t releasing untested feral cats put pet cats at risk?
There is a common misconception that feral cats have a much higher risk of infection with FeLV or FIV than pet cats do and therefore constitute a threat to pet cats. Several studies shed some light on the debate. A large national study published in 1991 reported a prevalence of 13% for FeLV and 7% for FIV in 27,976 diseased and “high-risk” pet cats. A 2004 report of more than 1700 healthy pet cats found 1% were infected with FeLV and 1% with FIV. In 2002, a study of 1876 stray and feral cats found 4% had FeLV and 4% had FIV. Yet another recent study of 20,705 pet cats found 3% to have FeLV and 3% to have FIV. Taken together, these data suggest that feral cats have similar retrovirus infection rates as pet cats. Most large-scale feral cat sterilization projects do not test cats, choosing instead to use their limited resources to sterilize the most cats possible. Just the act of sterilization itself would be expected to reduce transmission of these infections by reducing the high-risk behaviors of fighting and reproduction.

3. A client recently adopted a stray cat as a pet. He tested positive for FIV three months ago, but was negative when retested. Does this mean he was transiently infected with FIV?
Transient infection with FIV is believed to be a very rare event. Like the related virus HIV, observations such as those you describe are more likely due to inaccurate test results, rather than true reversion to negative status. Unfortunately, few of these cases have been confirmed by viral identification at both time points.

4. I know that vaccination for FIV invalidates the SNAP test. Can I order a Western blot instead?
Unfortunately, most of the readily available FIV tests are antibody assays, including the SNAP ELISA, the PetChek microwell ELISA that laboratories use for batch testing, the Western blot, and the IFA. All of these antibody tests are affected by FIV vaccination. PCR, which has been promoted as an alternative to antibody testing, has been shown to suffer from both high false-positive and false-negative rates when used for FIV detection. Virus culture is a highly reliable test, but is very expensive and time-consuming and is generally not available except in research laboratories.

5. I tested a healthy cat at its annual exam and it was positive on the SNAP screening test. The AAFP recommends confirmatory testing, so I submitted blood for Western blot, which was negative. That means the cat is not infected, right?
This is a common misunderstanding. When test results are discordant, it is not possible to know which one is correct. In general, the screening tests are said to be more sensitive (detect more infected cats), whereas the confirmatory tests are more specific (detect more uninfected cats). In cases where the tests disagree, you must perform another “tie-breaker” test such as virus isolation (which is generally only available to research scientists). Although PCR was been advocated as a good discriminatory test, a high rate of both false-positives and false-negatives have been reported for FIV PCR. In the absence of access to reliable confirmatory testing, the true status of cats with discordant test results remains undetermined.

6. Now that I am testing all the cats in my practice, I have identified a lot of very healthy FIV-infected cats. Is there anything I can do to keep them healthy?
Unfortunately, no well-controlled, long-term studies have been performed to evaluate the performance of antiviral or immune modulator therapy for maintaining health of FIV-infected cats. This is also a controversy in HIV, in which the side-effects and expense of anti-viral therapy are weighed against the protective effects on immune deterioration. In HIV, specific immune markers such as CD4+ cell counts and plasma viral loads are used to help decide when treatment should begin. The CD4+ cell count in cats can be obtained from several veterinary schools, including North Carolina State University and Colorado State University, but does not correlate with health status in FIV as well as it does in HIV. Plasma viral RNA level is also more difficult to determine in cats than in humans. The AAFP recommends twice annual veterinary evaluations to help detect any early signs of disease.

7. I know I can treat many of the secondary effects of FIV, but is there anything I can do to fight the virus itself when cats get sick?
This is another area in which little is known. Antiviral drugs such as interferon and AZT can reduce circulating viral burdens, but it is not known if this results in clinical benefits. My approach is to treat the recognized complications of FIV infection first, then add antiviral therapy (usually AZT) if response to treatment is...
8. I’ve heard that since passive transfer of maternal FIV antibodies can make kittens test false-positive for FIV that I can’t test before 6 months of age.

It is correct that kittens born to FIV-infected queens will absorb FIV antibodies in the colostrum and that these antibodies will cause false-positive results on the FIV test. However, this information is still valuable because it indicates that the kitten has been exposed to FIV (via the mother). Although the kitten’s chances of acquiring FIV from the queen are low, the kitten should be isolated from other cats until its true status is known by retesting it over the next few months up to six months of age. Luckily, most kittens are negative on the first test, so there is no conflict. It is also important to remember that FIV-vaccinated queens also pass antibodies to their kittens that cause false-positive test results. In our experience, most kittens born to vaccinated queens still test false-positive at 8 weeks, but are negative by 12 weeks.

9. Since FIV is primarily spread by biting, is it safe to keep a positive cat in a multi-cat household as long as they don’t fight?

Based on my own experience with clients who keep an FIV-infected cat in the same house with negative cats, I think this is generally true. However, in one study of a household with a large number of cats, 9 of 26 cats were FIV+ at the beginning of the study, and an additional 6 cats became infected over the next 10 years without evidence of fighting. This situation may have been, but it does give rise to some concern. I always recommend that clients avoid adding an infected cat to a negative household.

10. What is the significance of strain variation of FIV, and what strains are present in North America?

Currently there are 5 known strains of FIV worldwide. These strains are identified as A through E. Strains represent evolutionary changes in the virus sequences, but there are no clear pathologic correlations for different strains. One of the most important impacts of genetic variation of the FIV strains is the difficulty of developing reliable PCR assays for FIV. PCR relies on precise matching of nucleic acid sequences. When the natural virus has a high degree of nucleic acid diversity, PCR will be unable to detect some of the stains. This does not seem to be a problem with the antibody tests, since all strains seem to result in antibodies that are detected by a single test.

11. Does the new FIV vaccine protect against all strains of the virus?

This is a topic of much debate. Historically, it has been thought that FIV strains are poorly protective against other strains. For example, a vaccine made of strain A would induce poor protection against a challenge with strain B. However, much of this work was done in tissue cultures, not in cats, so it is difficult to know how wide-spread this phenomenon really is. Also, it is important to remember that the strain classification is based on genotypes, not serotypes or other functional criteria. It would be improper to assume that all FIV viruses within a single strain would be viewed similarly by the immune system. The FIV vaccine is composed of two FIV strains, Petaluma (A) and Shizuoka (D). It is hoped that using two disparate strains would induce broad immunity in cats. In the licensing trial, the vaccine was challenged with a single strain A virus. The preventable fraction against that one strain was high (82%), but it is not known what the protection against other strains would be. The most common strains in the United States are A and B.

12. I’ve heard there was a new strain of FIV in the United States. Is this true?

A unique FIV strain has been identified in Texas. Phylogenetically, it appears to fall between strains B and E. Dubbed the TX strain, it is not yet determined whether it is a branch from one of the known strains, a hybrid of several strains, or a new one altogether. The known strains are based on sequencing of only a few hundred viruses collected from cats worldwide. New strains may be discovered as more are sequenced.

REFERENCES