



THE CAT GROUP POLICY STATEMENT 3 TESTING FOR FELINE IMMUNODEFICIENCY VIRUS (FIV)

Background

Persistent infection with feline immunodeficiency virus (FIV) is fairly common, particularly among free-ranging cats. The virus can cause very serious disease resulting from a state of immunodeficiency that is produced over a period of time. Although many cats survive in good health with the infection, they can transmit the virus to other cats.

The disease conditions associated with FIV infection are relatively non-specific. During the primary phase of infection (first 2–4 months) cats may show short-term signs of illness involving malaise, pyrexia and possibly generalised lymph node enlargement. Most cats recover from this early phase and enter a second phase when they appear to be healthy. Eventually in the third phase of infection, other signs of disease may develop. Signs can arise as a direct effect of the virus. Thus, infection of nervous tissues can lead to neurological or behavioural signs, and infection of the intestinal tract may be associated with some cases of chronic diarrhoea. However, in most cases clinical disease results from secondary problems associated with the immunodeficiency that the virus may ultimately cause. These conditions can take many forms and therefore the clinical signs are quite variable. However the combination of multiple persistent or recurrent signs of disease may point to immunodeficiency. Common signs include malaise, weight loss, inappetence, pyrexia, lymphadenopathy and gingivitis. There may be a predisposition to other chronic problems such as rhinitis, conjunctivitis, chronic abscessation or cellulitis and skin problems. Cats with immunosuppression associated with FIV have a higher risk of developing neoplasia, particularly lymphoma, and are more vulnerable to other infectious agents that may be unusual, or of little/less consequence in otherwise healthy cats.

How is FIV spread?

Biting is considered to be the most important method of transmission for FIV. Infection appears also to occur by close social contact of cats living in groups where there is no overt aggression, but this route is thought to be a much less efficient method of spread. It is suspected that, as for FeLV, ingestion of saliva plays an important role in this situation. A small proportion of kittens

born to FIV-infected queens may also become infected, but the presence of infection in the kittens may be difficult to confirm until several weeks or months after birth because of the presence of maternally derived antibodies.

How prevalent is infection and what are the risk factors?

The overall prevalence of FIV in the healthy UK cat population is 3–6 per cent. Surveys of sick cats presented to veterinary practices have shown a higher prevalence of 12–18 per cent. The prevalence varies in different areas and between different groups of cats such as feral and farm cats, but where the virus is present the prevalence may be high. Infection is uncommon in pedigree breeding colonies. Important risk factors are recognised for FIV which are related to the most common method of transmission — biting. Entire male cats carry a higher risk of infection and a free-living life style increases the prevalence. Cats can be infected at any age. There is often a considerable delay between infection and development of clinical signs. Consequently, the appearance of disease is more common in middle aged or older cats. In contrast to FeLV, many FIV-infected cats remain healthy throughout their entire lives.

Testing

There are several test systems available for FIV, including in-practice test kits. In-practice tests detect anti-virus antibody, usually directed against a viral core protein (p24), the transmembrane envelope protein (gp40) or a combination of both. The most common test systems are based on enzyme-linked immunosorbent assays (ELISA) or immunochromatography (IC). Combination tests that enable simultaneous testing for FIV and FeLV are widely used.

The more specialised tests include immunofluorescence and western blotting for the detection of antibodies to FIV, and virus isolation and polymerase chain reaction (PCR) for the detection of the virus itself. Several laboratories use immunofluorescence as their first-line test, as this is very sensitive and detects antibody to any of the viral proteins. Western blotting is a second sensitive test, which allows the detection of antibodies to individual viral proteins.



Feline Focus

Virus isolation is sensitive but is limited by practical considerations (expense, facilities and time) and it is not suitable for routine use. PCR tests, which detect the FIV nucleic acids (genetic material) are now more readily available and are very sensitive.

Similar issues of accuracy and the potential for errors apply to the in-practice test kits for anti-FIV antibody as for FeLV antigen. Providing the test has been performed correctly with an appropriate sample, and the specificity of the test is very high, positive results are generally reliable. However, it is recommended that a positive result on an in-practice test of a healthy cat should be confirmed by another type of test, such as immunofluorescence or western blotting. The in-practice test kits require blood samples and are best performed with serum or plasma, rather than whole blood. As with all test kits there is a possibility for false positive and false negative results. In cats with a high suspicion of infection but which are negative on in-practice test kits, use of another test system to confirm the negative result is also highly recommended.

Prognosis for infected cats

The prognosis for FIV infected cats is more unpredictable but generally better than for FeLV-infected cats. The outlook for cats that show severe, chronic, multiple signs of disease is poor. If clinical signs have developed only recently and are not severe, there is a reasonable prospect of improvement with treatment, which may be maintained for some time. Treatment usually consists of supportive therapy, often antibiotics, possibly coupled with antiviral therapy. Some FIV-positive cats that have shown no clinical signs related to infection may remain healthy for extended periods, if not indefinitely.

Vaccination

A vaccine for FIV has been licensed in the USA, but there are limited data on efficacy at this point. Healthy FIV-infected cats should continue to be vaccinated against other infectious diseases.

The pet cat

Single indoor/outdoor cats

Single cats should be tested for FIV if they are sick and showing signs compatible with infection. The cat infected with FIV poses a risk to other cats and in order to prevent it transmitting the virus it would need to be kept in isolation from others. Additionally, isolating healthy FIV infected cats indoors can be of benefit in protecting against exposure to other feline infectious agents. On welfare grounds isolation may not be applicable to some cats that will not tolerate being kept indoors permanently. Therefore, owners must weigh up the risks (to their own and other cats) with the welfare implications. It is possible to

fence in the garden or provide a run where cats can go out and present no risk to themselves or others.

Single cats confined indoors

Single cats confined indoors are at no risk of exposure to FIV. However, since there can be a long delay between infection and development of disease, there is a possibility that a cat has acquired an infection as a young kitten, despite having spent its whole life since then isolated from other cats.

Multicat households

The same considerations about possible risk to neighbouring cats apply to infected cats from multicat households as from single cat households. The issue of possible spread of infection within a household of cats must also be addressed since FIV appears to spread even among cats that show no overt aggression to each other.

In a household in which a cat with FIV infection has been identified, testing is indicated to determine the status of the individual cats. Test results can allow segregation of infected and uninfected cats if this is practical within the households. A good general health care programme should be maintained which may help both to reduce transfer of infection and progression of disease.

Testing of cats before introducing new individuals into a multicat household should be done to prevent inadvertent spread to incoming cats, or to cats already established in the household.

The rescue situation

What should be the test protocol for cats coming into the rescue facility?

In an ideal world all cats would be tested for FIV. However the costs for this would be very high. The prevalence in the general cat population is about 3 to 6 per cent. However, this increases with age and within certain 'at risk' groups of cats. All 'at risk cats' should be tested for FIV. These include all entire males, sick cats, those with visual evidence of fighting, and feral cats. Fractious cats may be tested and neutered at the same time to allow for blood sampling under anaesthetic.

What are the responsibilities/legal considerations for the rescue facility?

Rescue facilities have a duty of care - they should undertake what is reasonable in the circumstances. As outlined above, it may not be financially viable to test every cat or kitten, but whether they have been tested or not should be explained to the new owner, along with any results if tests have been undertaken. No cat that has tested positive for



Feline Focus

FIV should be rehomed without the new owner being fully informed of the risks.

What is the suggested test protocol for kittens and for cats?

There are complications in identifying FIV infection in young kittens based on antibody testing because kittens from FIV-infected dams may have obtained anti-FIV antibodies from their mother, via the colostrum. Therefore, they will test positive by a test for antibodies but may not be infected themselves. There is also a chance of kittens born to infected queens becoming actively infected from their mother. If screening is to be performed by antibody testing, this should be delayed until 20 weeks of age, by which time maternally derived antibodies may no longer be present. The kitten should have antibodies of its own if it is infected (ie, a positive result will indicate true infection). It is suggested that kittens less than 20 weeks old which test FIV-positive should remain at the rescue facility and be re-tested after 20 weeks of age. An alternative is to test for the presence of virus using PCR or virus isolation from eight to 10 weeks of age.

What about positive cats?

A cat testing positive for FIV which is showing any sign of illness should be euthanased. Any adult cat that tests

positive for FIV and appears otherwise healthy may have a good life expectancy and may therefore be considered for re-homing. However, in view of the risks to other cats, this must be to a home where there are no other cats and where the new owners can guarantee that the cat will not go outside. It may be that such requirements cannot be fulfilled. In these circumstances the cat should be euthanased.

Feral cats

Feral kittens young enough to be rehomed can be considered as any other rescue kittens (see above). All feral cats should be tested before being rehomed or returned to their colony, and those which test positive should be euthanased.

Breeding/showing cats

Risk of spread at cat shows is minimal. Positive cats should not be bred from, and new owners and other breeders should enquire about the FIV status of the cats. Most breeders test for FIV on a regular basis and most breeding cats are kept indoors or in runs where FIV cannot be contracted from outside cats.

For more information on The Cat Group see: www.thecatgroup.org.uk