



# FELINE INFECTIOUS PERITONITIS (FIP) INFORMATION FOR CAT OWNERS

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Over the last few years great progress has been made in the treatment of feline infectious peritonitis (FIP). This previously deadly disease can now be successfully managed. However, it remains a serious condition and this document is written to help owners understand the available medications and how they are used to treat cats with FIP.



Email help service for your vet:  
[fipadvice@gmail.com](mailto:fipadvice@gmail.com)



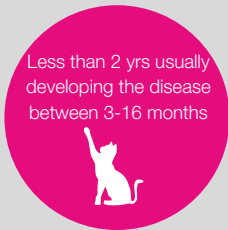
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## What is feline infectious peritonitis?

FIP is a severe disease in cats caused by feline coronavirus. COVID-19 is also caused by a coronavirus but the coronavirus causing FIP is not the same and only infects cats. Feline coronavirus is commonly found in the faeces of cats and research has shown that infection is very common among cats. Thankfully, in most, it causes mild diarrhoea or no signs at all. However, in a small number of cats, the virus changes (mutates) inside the cat, and interacts with the cat's immune system in a certain way, resulting in FIP. Finding coronavirus in a cat doesn't mean they have FIP, and it is not possible to consistently tell the difference between a coronavirus causing FIP, and one causing no signs of illness. Further tests must be performed by a veterinarian to diagnose FIP.




## Which cats develop FIP?

We do not know why certain cats develop FIP and others do not, but it is diagnosed more often in young cats under 2 years of age, pedigree cats and cats in multicat homes (eg homes with several cats, breeding environments, shelters). The disease is however also diagnosed in older cats and cats in single cat environments.



## What signs do cats with FIP show?

Cats with FIP can show a variety of signs as the disease can affect any organ in the body. The most common signs are:

-  Lethargy/tiredness
-  Eating less and losing weight
-  A high temperature



Additionally, the disease can cause fluid to accumulate in the abdomen/belly, chest and occasionally around the heart (so called 'wet' FIP) so owners may notice a swollen, rounded belly or the cat may have difficulty breathing. The non-effusive ('dry') form can affect any organ including the intestines, lymph nodes, brain, kidneys and eyes. Many cats have a combination of 'wet' and 'dry' forms of FIP and some cats have pale, slightly yellow gums.

If the brain or spinal cord is affected cats will show signs such as fits, an abnormal way of walking (wobbly gait), changes in behaviour or trembling for example.

If the eyes are affected they may look cloudy, bloody or with different pupil sizes, and the cat may show signs of pain such as holding the eye or eyes closed.

### How is FIP diagnosed?

FIP can be difficult to diagnose and require several tests including blood tests and scans to investigate. In some cases, it is not possible to confirm the diagnosis and the veterinarian will look at the available information, and try to rule out other conditions that can look like FIP (some infections, liver diseases and types of cancer) before considering a treatment trial for FIP.

### Different types of FIP

#### "Wet FIP"

in which fluid develops in a body cavity – especially the abdomen and/or chest



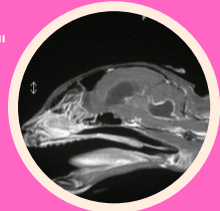
#### "Dry FIP"

when no fluid forms



#### "Neurological FIP"

Brain and/or spinal cord



#### "Ocular FIP"

affecting the eyes



Cats with FIP tend to have some typical abnormalities:

- Blood tests: often show high protein levels, low red blood cells (anaemia) and elevated markers of inflammation;
- Fluid samples: typically yellow in colour, high in protein and contain inflammatory cells; the fluid can also be sent to the laboratory to look for coronavirus;
- Ultrasound scans: can identify fluid and abnormalities in organs such as the kidneys, liver, intestines and lymph nodes and can be used to guide obtaining needle samples for testing;
- Advanced imaging: for cats with neurological signs MRI or CT scanning may be required along with sampling fluid from around the brain/spinal cord. this type of imaging often requires referral.

### **Some laboratory tests are less helpful for making a diagnosis of FIP including:**

- Feline coronavirus antibody tests (serology): this test shows a cat has met coronavirus but as the virus is so common, many cats will test positive that do not have FIP. Some cats with FIP who are severely unwell can test negative as their antibodies are used up in trying to fight the disease.
- Faecal (poo) testing for coronavirus: as many cats are coronavirus infected and therefore can pass coronavirus in their poo, 'faecal shedding' is common and does not mean the cat has FIP, or will develop FIP.



### **How is FIP treated?**

In the past, there was no effective treatment for FIP but thankfully times have changed and there are several antiviral medications available with good results in treating FIP. These drugs are legally available in many countries and have been shown to be safe and effective, although they can be expensive.



## Available drugs include:

- Remdesivir: an injectable medication given under the cat's skin or into a vein and reserved for very sick cats unable to take oral medication (tablets/suspensions);
- GS-441524: tablets or a suspension (liquid) that can be used from day 1 of treatment and is usually the preferred treatment;
- EIDD-1931: tablets used in cases not responding to adequate dosages of GS-441524 or relapsing (becoming unwell again with FIP after initially improving).

Current recommendations are to treat for 12 weeks to allow full clearance of the disease. This can seem a long time but gives cats the best chance of recovery. It may be that shorter courses can be recommended in the future but for now 12 weeks of treatment is required. Different types of FIP require different amounts (dosages) of antiviral medication, FIP cats showing neurological and/or ocular signs being treated with higher dosages. However, there is variation in how cats respond, and adjustments may be needed during the treatment period. If a cat is not responding as expected, the amount of antiviral medication may need to be increased.

## How to give tablets or suspensions (liquids)

Oral medications (tablets or suspensions) can be given in a treat (liquid paste or putty-type treats can work well) after a short period without food (at least an hour). The treatment will be given for 12 weeks. It is important that medicating is not a negative experience for the cat. Tips include:

- Removing food overnight can ensure the cat is hungry in the morning and keener to accept treats, and the same in the evening;
- Avoid putting medications in/on a main meal as it can deter the cat from eating and be hard to decide if all of the medication has been taken;
- Try to associate giving medication with positive experiences such as grooming, stroking or playing (if enjoyed by the cat);



- Try different treat textures and types, plus small amounts of strong flavoured foods such as tuna or chicken in which to hide medications
- For cats that will not take medication in food, giving tablets or liquids directly into the mouth may be needed and your vet practice can demonstrate techniques and be contacted if owners are finding it difficult. See <https://icatcare.org/advice/how-to-give-your-cat-a-tablet/> for more information.

### Side effects of treatment

Antiviral medications are generally well tolerated but any changes in a cat's health or behaviour should be discussed with the veterinarian. Remdesivir injections can be painful and painkillers/medications to reduce anxiety may be needed. Other side effects may include changes in blood test results (mild elevations in liver enzymes and changes in white blood cells) that generally have no effect on a cat's health. Side effects should be discussed with the veterinarian supervising the FIP treatment.

### Other supportive treatments

Various other treatments may help cats with FIP during their antiviral treatment. Very unwell cats may need to be hospitalised for management of dehydration and lack of nutrition and to start their antiviral treatment.

Many cats with FIP will benefit from painkillers and anti-nausea drugs at diagnosis and cats with changes in their brain or eyes may need additional medications. It is very important cats with FIP eat well during treatment as often they have lost weight, so occasionally feeding tubes and appetite stimulants are required.



## How are cats monitored during and after treatment?

Cats with FIP treated with antiviral medications should improve rapidly. Appetite and demeanour/mood and high temperature should improve in just a few days and further monitoring may include:

- Examinations: veterinarians can assess cats for normalisation of their temperature, resolution of changes in the eyes and brain and changes in the organs;
- Blood tests: proteins may take several weeks to become normal, initially possibly increasing if fluid in wet FIP cases is reabsorbed;
- Body weight: it is very important to accurately and regularly weigh cats with FIP as they may need increases in medication as they grow and gain weight, and failure to gain weight could indicate adjustments in treatment are needed;
- Fluid assessment: collections of fluid should reduce over 2-3 weeks and can be monitored by the veterinarian measuring the cat's belly diameter with a tape measure is a cost effective but less accurate alternative;

Importantly, owners should monitor their cats at home for appetite, and energy levels and weighing cats with scales for babies weekly can provide very useful information.



### Information for your vet

Bova Group provides resources and additional reading for your vet, available here:

[https://bit.ly/FIP\\_resources](https://bit.ly/FIP_resources)



Email help service for your vet: [fipadvice@gmail.com](mailto:fipadvice@gmail.com)



## How successful is the treatment of FIP?

Research has shown that about 85% of cats will respond to treatment. These cats appear to be cured and long-term follow-up over 2-3 years has shown they remain healthy in most cases. It is early days in the experience of treating FIP. Further research will help improve understanding, but it is hoped that treated cats will be cured. Some cats may 'relapse' and become unwell with FIP again during or after treatment so all treated cats should see their veterinarian if they show signs of illness again. A small number of cats do not respond to treatment, often if they are very unwell when they are diagnosed, and other cats can respond for a short time and then become unwell again (relapse). Adjustments in treatment can help in some cases and should be discussed with the veterinarian supervising their care.

## What to do if you need more advice on treatment of FIP

Your veterinarian will be best placed to help and treatment of FIP is a team approach between you and your veterinary clinic doing the best for your cat. As we are still learning about the treatment of FIP with antivirals, a team of feline experts have set up an email help service for vets at [fipadvice@gmail.com](mailto:fipadvice@gmail.com) and have answered 2000 emails from around the world about FIP. Please ask your veterinarian to email for help if they need to discuss the diagnosis or treatment of a suspected case of FIP.



The feline expert team cannot provide advice directly to owners for patients who are not under their care, so please make sure it is your veterinarian who emails and that they send the medical details for each case. Further information for veterinary teams is available at: [https://bit.ly/FIP\\_resources](https://bit.ly/FIP_resources)

More detail on FIP can be found on the International Cat Care website: <https://icatcare.org/advice/feline-infectious-peritonitis-fip>