"An ounce of prevention is worth a pound of cure" definitely rings true for FP—preventing infection is more effective than treating an infected cat. Today, there are vaccines that offer the best protection from feline parvovirus infection. The vaccines stimulate the cat's body to produce protective antibodies. Later, if the vaccinated cat comes in contact with an infected cat or is exposed to the virus in the environment, its body will likely fight off the infection because of those same antibodies produced in response to the vaccine. Vaccination is equally important for strictly indoor cats as well as indoor/outdoor cats because the virus is everywhere in the environment.

The vaccines are effective for prevention of FP but they cannot treat or cure an unvaccinated cat once it becomes ill. Vaccines must be given before the cat is exposed and infected. Most young kittens receive their first vaccination between six and eight weeks of age and follow-up vaccines are given until the kitten is around 16 weeks of age. Adult vaccination schedules vary with the age and health of the cat, as well as the risk of FP in the area. Cat owners should consult a veterinarian for advice on a vaccination schedule appropriate for their cats.

For more information, visit,

American Veterinary Medical Association
www.avma.org

Cornell Feline Health Center
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Feline Panleukopenia

Brought to you by your veterinarian and the American Veterinary Medical Association

In the past, feline panleukopenia (FP) was a leading cause of death in cats. Today, it is an uncommon disease, due in large part to the availability and use of very effective vaccines.

What is feline panleukopenia?

Feline panleukopenia [pronounced "loo-koh-PEE-nee-ah"] (FP) is a highly contagious viral disease of cats caused by the feline parvovirus. Over the years, FP has been known by a variety of names including feline distemper, feline infectious enteritis, cat fever and cat typhoid. Feline distemper should not be confused with canine distemper— although their names are similar, they are caused by different viruses. Because the FP virus is everywhere in the environment, virtually all kittens and cats are exposed to the virus at some point in their lives. Vaccination is extremely important because the rates of illness and death from FP is high in unvaccinated cats.

The feline parvovirus infects and kills cells that are rapidly dividing, such as those in the bone marrow, intestines, and the developing fetus. Infected cats usually develop bloody diarrhea because of the damage to the cells that line the intestines. They also develop panleukopenia (shortages of all types of white blood cells) because the parvovirus infection damages the bone marrow and lymph nodes. White blood cells are necessary for the immune system's response to infection. A decrease in red blood cells may also occur (a condition called anemia, pronounced "ah-NEE-me-ah"). When both the red blood cell and white blood cell numbers are low, the condition is called pancytopenia [pronounced "pan-sigh-toe-PEE-nee-ah"].

People cannot develop FP if they come in contact with an infected cat because the virus does not infect people.

How can I tell if a cat has FP?

The signs of FP can vary and may be similar to other illnesses such as *Salmonella* or *Campylobacter* infection, pancreatitis, feline immunodeficiency virus (FIV) infection, or feline leukemia virus (FeLV) infection. Infected cats may even show signs that resemble those seen when a cat has been poisoned or has swallowed a foreign object.

The first visible signs an owner might notice include generalized depression, loss of appetite, high fever, lethargy, vomiting, severe diarrhea, nasal discharge, and dehydration. Sick cats may sit for long periods of time in front of their water bowls but not drink much water. Normally, the sickness may go on for three or four days after the first fever. In some cats, the fever will come and go during the illness and abruptly fall to lower-than-normal levels shortly before death.

Cats are very good at hiding disease and by the time a cat displays the signs of illness, it may be severely ill. Therefore, if any abnormal behaviors or signs of illness are observed, it is important to have your cat examined by a veterinarian as soon as possible. Feline panleukopenia may be suspected based on a history of exposure to an infected cat, lack of vaccination, and the visible signs of illness. When that history of exposure is combined with blood tests that show very reduced levels of all white blood cell types, FP is very likely the cause of the cat's illness. FP is confirmed when the feline parvovirus is found in the cat's stool, but the results might be falsely positive if the cat was vaccinated for FP within 5-12 days prior to the test.

How do cats get infected with the virus that causes FP?

Cats can "shed" the virus in their urine, stool, and nasal secretions, and infection occurs when susceptible cats come in contact with the blood, urine, stool, nasal secretions, or even the fleas from infected cats. An infected cat tends to shed the virus for a relatively short period of time (1-2 days), but the virus can survive for up to a year in the environment, so cats often become infected without ever coming into direct contact with an infected cat. Bedding, cages, food dishes, and the hands or clothing of people who handle the infected cat may harbor the virus and transmit it to other cats. It is, therefore, very important to isolate infected cats. Any materials used on or for infected cats should not be used or allowed to come in contact with other cats, and people handling infected cats should practice proper hygiene to prevent spreading the infection.

The virus that causes FP is difficult to destroy and resistant to many disinfectants. Ideally, unvaccinated cats should not be allowed into an area where an infected cat has been — even if the area has been disinfected.

Pregnant female cats that are infected with the virus and become ill (even if they do not appear seriously ill) may abort or give birth to kittens with severe damage to the cerebellum, a part of the brain that coordinates nerves, muscles and bones to produce body movements . These kittens are born with a syndrome called feline cerebellar ataxia, and their movement is accompanied by severe tremors (shaking).

In most cases, once a cat recovers from FP, it will not infect other cats through direct contact, but some recovered cats can shed the virus in their stool and urine for up to 6 weeks.

Which cats are susceptible to FP?

While cats of any age may be infected with the feline parvovirus that causes FP, young kittens, sick cats, and unvaccinated cats are most susceptible. It is most commonly seen in cats 3-5 months of age; death from FP is more common at this age.

The virus has appeared in all parts of the United States and most countries of the world. Kennels, pet shops, animal shelters, unvaccinated feral cat colonies, and other areas where groups of cats are housed together appear to be the main reservoirs of FP. During the warm months, urban areas are likely to see outbreaks of FP because cats are more likely to come in contact with other cats.

How is FP treated?

The likelihood of recovery from FP for infected kittens less than eight weeks old is poor. Older cats have a greater chance of survival if adequate treatment is provided early. Since there are no medications capable of killing the virus, hospitalization and treatment are critical to support the cat's health with medications and fluids until its own body and immune system can fight off the virus. Without such supportive care, up to 90% of cats with FP may die.

Once a cat is diagnosed with FP, treatment is required to correct dehydration, provide nutrients, and prevent secondary infection. Although antibiotics do not kill the virus, they are often necessary because infected cats are at a higher risk of bacterial infections – this is because their immune systems are not fully functioning (due to the decreased white blood cells) and because the virus damages their gut, which may allow the bacteria in the gut to enter the cat's bloodstream and cause infection.

If the cat survives for five days, its chances for recovery are greatly improved. Once home, the area where the infected cat is kept should be warm, free of drafts, and very clean. Strict isolation from other cats in the home is necessary to prevent spread of the virus. Other cats that may have been in contact with the infected cat, or in contact with objects or people who were in close contact with the sick cat, should be carefully monitored for any visible signs of illness. Sadly, some cats may lose the will to live when they are very sick, so frequent petting, hand feeding, and good nursing care are essential to promote healing.

How can FP be prevented?

Cats that survive an infection develop immunity that likely protects them for the rest of their lives. Mild cases that go unnoticed will also produce immunity from future infection.

It is also possible for kittens to receive temporary immunity through the transfer of antibodies in the colostrum — the first milk produced by the mother. This is called "passive immunity," and how long it protects the kittens from infection depends upon the levels of protective antibodies produced by the mother. It rarely lasts longer than 12 weeks.