

# Sneezing and Feline Upper Respiratory Disease

*Drs. Foster & Smith Educational Staff*

Sneezing and eye discharge in cats are the most common characteristics of 'Feline Upper Respiratory Disease Complex'. This is the term used to describe a condition affecting the mouth, nasal passages, sinuses, upper airway, and sometimes the eyes in cats and kittens. There are multiple causes of feline upper respiratory complex, but 80-90% of the cases are caused by feline herpes-1 (also called feline rhinotracheitis virus) and calicivirus (pronounced kal-ee-chee). Other causes of sneezing in cats include *Chlamydomphila felisi* (previously termed *Chlamydia*), feline reovirus, *Bordetella bronchiseptica*, *Pasteurella spp.*, and mycoplasmas. Infections and symptoms by some of these agents may occur secondarily to an infection with rhinotracheitis virus or calicivirus.

How is feline upper respiratory disease complex spread?

Both feline rhinotracheitis virus and calicivirus are spread through contact with the discharge from the eyes and nose of an infected cat. This usually occurs through direct cat-to-cat contact. Sneezing may contaminate the environment. Food dishes, hands, bedding, etc., which have been contaminated with infected discharge, can transmit these viruses from one cat to another.

What are the symptoms of feline upper respiratory disease complex?

The symptoms of feline upper respiratory disease vary as to which virus, bacteria, etc., is the cause, the age of the animal, and other health factors. A summary of the symptoms as well as other characteristics of rhinotracheitis and calicivirus infections are summarized in the table below.

<b>Characteristic</b>	<b>Feline Rhinotracheitis Virus</b>	<b>Calicivirus</b>
<b>Incubation period</b>	2-17 days	1-14 days
<b>Duration of illness</b>	2-4 weeks	1-2 weeks
<b>Nasal signs</b>	Sneezing common; nasal discharge	Nasal discharge; sneezing uncommon
<b>Effects on the eye</b>	Conjunctivitis; discharge; sometimes corneal ulcers	Discharge
<b>Mouth lesions</b>	Drooling; ulcers are rare	Oral ulcers common; can cause chronic gingivitis
<b>Pneumonia</b>	Rare	Common
<b>Effect on reproduction</b>	Abortion	None
<b>Signs of limping</b>	None	Joint and muscle pain can occur; may develop ulcers on paws
<b>Fever</b>	Common	Inconsistent
<b>Loss of appetite</b>	Severe	Mild
<b>Depression</b>	Common and severe	Mild
<b>Carrier state*</b>	Intermittent; occurs after stress	Continual for years

<b>Survival in environment</b>	Less than 24 hours	8-10 days
<b>Susceptibility to disinfectants</b>	Susceptible to common disinfectants	Not as susceptible; use a 1:32 dilution of household bleach (1/2 cup of bleach to 1 gallon of water)
*A 'carrier' is a cat who continues to harbor the virus but does not show any signs of the disease.		

How is feline upper respiratory disease complex diagnosed?

The diagnosis of feline upper respiratory disease complex is made based on medical history (e.g., vaccination status and possibility of exposure to an infected cat), clinical signs, and through special laboratory tests to determine the exact cause of disease. These tests include polymerase chain reaction (PCR) testing, virus isolation, and fluorescent staining of cells taken from the conjunctiva. If a cat has recurrent episodes of disease, has signs of disease even though it was vaccinated, or the symptoms last longer than two weeks, the cat should be tested for [feline leukemia virus \(FeLV\)](#) and [feline immunodeficiency virus](#).

How are the sneezing and other signs of feline upper respiratory disease complex treated?

The treatment of cats with feline upper respiratory disease complex is basically the same, regardless of cause and includes:

- Keeping the eyes and nasal passages clear through regular removal of discharge, increasing the humidity (e.g., placing a vaporizer in the room with the cat), and the possible use of a nasal decongestant prescribed by the veterinarian
- Ensuring food and water intake - this may be difficult since the nasal symptoms may not allow the cat to smell the food, in which case he usually does not eat. These cats may need to be force fed.
- Keeping the cat quiet and warm
- Controlling secondary bacterial infections through the use of antibiotics
- Treating any oral ulcers or eye lesions with appropriate medication

Because of the contagious nature of the disease, cats with upper respiratory disease are generally not hospitalized unless their symptoms are severe. In severe cases, fluid therapy, supplemental oxygen, or a tube placed in the stomach for feeding cats who will not eat may be necessary.

Chronic infections with feline herpes virus may be treated with lysine. Alpha interferon is also sometimes used in the management of chronic infections with either feline herpes virus or calicivirus.

What is the prognosis for cats with feline upper respiratory disease complex?

Most cats infected with feline rhinotracheitis virus or calicivirus will become chronic carriers of the virus. This means they will continue to be infected with the virus but not show any signs of the disease. In the case of rhinotracheitis (herpes-1), cats will often shed the virus in secretions from the eyes and nose after they have been stressed, e.g., boarding, moving, new addition to the household, nursing kittens, etc. Cats with calicivirus will shed the virus continually for years. Cats who have been vaccinated for calicivirus and then exposed to an infected cat may become infected with the 'wild' virus (the strain of virus that occurs naturally and can cause disease, not the vaccine strain), never show signs of disease, become carriers of the wild virus, and continue to shed the wild virus.

What is virulent systemic feline calicivirus?

A rare and more severe form of feline calicivirus called virulent systemic feline calicivirus (VS-FCV) has been identified in several outbreaks. These outbreaks occurred where large numbers of cats were housed together, such as in shelters. It affects young and adult cats and causes similar symptoms as typical calicivirus except after several days high fever, edema, and skin lesions develop. Vomiting, diarrhea and pneumonia can also occur. Up to 50-60% of affected cats die from this infection with VS-FCV. Traditional vaccines against calicivirus do not protect against this virulent strain. A killed vaccine has been developed and its use in shelter situations is still controversial.

How is feline upper respiratory disease complex prevented and controlled?

Vaccination is the primary way to prevent feline upper respiratory disease complex. There are several different types of vaccines available: a modified live injectable vaccine, a modified live vaccine that is administered into the nose, and an injectable killed vaccine.

The modified live injectable vaccine is often a combination product which includes rhinotracheitis, calicivirus, and

[panleukopenia](#), another viral disease of cats. Combination vaccines may also include feline leukemia virus and *Chlamydomphila*. Modified live injectable vaccines should be administered very carefully, so none of the vaccine gets into the eyes, nose, or mouth of the cat, otherwise the vaccine could induce clinical signs of disease.

The modified live intranasal vaccine is manufactured differently so it is safe to give in the nose, although, mild sneezing or nasal discharge could occur. The advantages of this vaccine are that it provides better and more rapid protection (within 2-4 days of giving the vaccine), can be given to very young kittens, and is effective even if maternal antibodies are present. It is recommended that this vaccine be used in limited situations in which there is a high but unavoidable risk of exposure.

The killed injectable vaccine often comes as a combination product. Some killed vaccines are licensed to be used in pregnant cats so the newborn kittens will be born with more protection. These vaccines are also used in debilitated or immunodeficient cats. Some are licensed for use in very young kittens.

Regardless of which vaccine is used, kittens need a series of vaccinations to become protected. [Vaccination schedules](#) should take into account the potential of exposure of the kittens to cats who have disease or may be carriers of the viruses.

Remember, vaccination is not 100% effective. Vaccinated cats can still become infected with the wild strain of virus, show mild signs of disease and become carriers of the virus.

Because vaccination is not 100% effective, and rhinotracheitis virus and calicivirus are wide spread, other control measures are often necessary in areas where cats are in close proximity, e.g., boarding facilities and catteries. Suggested control and prevention measures include:

- Provide regular vaccinations
- Admit only cats who are vaccinated
- House cats individually
- Separate known carriers or cats showing signs of disease, such as sneezing, from the other cats, and feed and clean their cages last.
- Use pens, cages, litter boxes, and bowls that can be easily disinfected
- Soak used items, e.g., bowls, in a 1:32 solution of bleach (1/2 cup of bleach to 1 gallon of water) for several hours and then do not reuse for at least 24 hours
- Have solid partitions between pens and provide an aisle between the fronts of the cages at least 4 feet wide
- Design pens so dishes and litter can be removed from the pen without opening the door.
- Wash and disinfect hands between handling cats, or use individual pairs of rubber gloves for each cat
- If a cat is permanently removed from a pen or cage, disinfect the cage and allow it to remain empty 2 days before reusing it
- Provide adequate ventilation and control humidity and temperature
- Prepare food in a separate area away from the cats
- Vaccinate female cats before breeding or during pregnancy (killed or inactivated vaccine only)
- Attempt to keep animals as stress-free as possible
- Do not breed female cats who had previous litters of kittens with respiratory disease
- Separate pregnant cats from other cats starting at least three weeks before giving birth
- Keep kittens separate from other cats until a week after their second vaccination (usually at 12 weeks)

- adapted from Gaskell, RM and Dawson, S.