

Kitty sniffles: Feline Upper Respiratory Infections

Feline upper respiratory infection (URI) is one of the most frustrating illnesses facing many shelter veterinarians, staff and volunteers. Even though there are many challenges when dealing with Feline URI in shelters, there are some shelters and catteries that clearly suffer less from URI than others and we know that even though we will likely never totally eradicate URI, the frequency and severity of cases can be greatly reduced through a systematic management strategy. Good preventive management and medicine are the cornerstones of URI control in feline populations.

All shelter staff and volunteers should be trained in recognizing the signs of feline URI. Any cat showing any one of these signs should be considered infected, and should at minimum be isolated from the rest of the healthy population.

- Clear or colored nasal discharge
- Sneezing
- Red/inflamed eyes
- Ulcers/sores on the nose, lips, tongue or gums
- Fever/lethargy/loss of appetite

URI pathogens:

Any of the agents listed below can be a primary cause of URI; they can also team up with each other to cause a complex infection, and can result in other secondary bacterial invading the airways and causing severe disease.

- Feline Herpesvirus-1 (FHV)
- Feline Calicivirus (FCV)
- *Chlamydomphila felis*
- *Mycoplasma* spp.
- *Bordetella bronchiseptica*

Approximately 80-90% of feline URI cases are thought to be caused by feline herpes or calici virus. Just like in the case of CIRDC in dogs it is important to remember that the germs are not the only important factor when dealing with URI. Environmental factors and animal immune status play an equally important role in the development of actual disease.

Prevention of feline URI

• Population management

The single greatest risk factor for severe respiratory disease outbreaks in an animal population is crowding and the resulting stress. High population density results in:

- Greater risk of disease introduction
- Higher contact rate
- Reduced air quality
- Compromises in housing and animal care

One of the best tools for respiratory disease prevention is to reduce the amount of time each cat spends in the shelter environment; therefore management practices that increase length of stay for shelter cats

should be carefully assessed to ensure the supposed benefit of these practices outweighs the potential increased risk of disease. Delays may be due to routine quarantine of apparently healthy animals, delays created by inability to perform behavior assessment or surgery when the animal is available, or failure to move cats to the adoption floor as soon as they are available. Increased time for each cat in the shelter also contributes substantially to crowding.

- **Stress reduction**

Stress can be an important factor for development of any disease in a shelter animal as we know that high levels of stress will have a negative impact on the immune system and the cat's ability to cope with disease exposure, but even more so when dealing with feline URI as we know that the clinical signs and shedding of FHV-1 are activated by stress. Thus, stress reduction is crucial to feline URI control.

Stress reducing options:

- "Spot cleaning" where possible.
- Prioritizing adequate housing for cats
- Providing hiding places
- Decreasing noise exposure
- Maintaining light/dark cycles and comfortable temperatures
- Providing toys and scratching surfaces are also important to relieving feline stress

Unnecessary handling should be minimized, especially for timid cats – the theoretical benefit of interventions that involve handling or forceful medication must be weighed against the certain stress these procedures cause. Feline socialization programs can be helpful in relieving stress for many cats; but must be implemented and monitored with care. Not all cats will appreciate being removed from a cage, cuddled by a stranger and carried to an unfamiliar room to play, volunteers can also inadvertently act as efficient fomites for disease spread if not trained.

- **Vaccination**

Unfortunately vaccination is not the magic bullet we would like it to be when it comes to upper respiratory diseases in cats. They do not prevent infection of any URI pathogen, and in fact many strains of feline calicivirus are vaccine resistant. Vaccination is still a useful tool as it may reduce the severity and duration of disease, and should therefore be given immediately upon shelter entry.

- Modified live (MLV) injectable subcutaneous vaccines are available containing feline herpesvirus, feline calicivirus and feline panleukopenia (FVRCP).
- Intranasal MLV two-way (FVRC) or three-way (FVRCP) vaccines are also available.
- A MLV *Bordetella* vaccine for cats is available, but is not generally recommended for shelters except for cases when *Bordetella* has been demonstrated to be the cause of respiratory disease outbreaks by laboratory diagnostics.

MLV vaccines are generally preferred as they provide a more rapid protection (5-7 days parenteral, 3-5 days intranasal), they may however may cause mild clinical signs (especially intranasal vaccines) that cannot be distinguished from a natural infection.

- **Disinfection**

Fortunately most of the germs causing feline URI will only survive in the environment for a short time. Feline herpesvirus will only survive for a few hours while *Bordetella* can survive up to a few weeks. With

the exception of feline calicivirus, they are all inactivated by routinely used disinfectants. Feline calicivirus may survive for up to a month or even longer in dried discharge, and is inactivated by household bleach (5% sodium hypochlorite) diluted at 1:32, or by potassium peroxymonosulfate (Virkon® or Trifectant®).

- **Isolation**

Many cats shed URI pathogens without showing clinical signs, which is why careful hygienic precautions are imperative even when handling apparently healthy cats. Cats with active signs of infection are likely to be shedding much greater amounts of germs, and isolation of these cats from the general population is a necessary for any disease control program. Many cats are still shedding significant amounts fo germs the first few weeks following recovery. Although not always practical, ideally these cats will not be mixed directly back into the general population, or at least not with vulnerable populations such as kittens or recent arrivals.

- **Air Quality**

Air quality is undoubtedly important to URI control, and although fresh air exchange is often emphasized, reduction of airborne contaminants is equally or more effective. This can be achieved by:

- Reducing population density
- Frequent litter box cleaning
- Using low dust litter
- Use of disinfectants at correct dilution

Air filtration (i.e. HEPA filter) may be tried but is less effective than fresh air exchange or contaminant reduction.

Diagnosis

It is often not realistic for shelters to obtain a specific diagnosis for URI in the cat population. There are some circumstances under which laboratory diagnostics have value though:

- Unusual signs, severity or frequency of disease in a population of cats
- Planned husbandry changes (e.g. before investing in vaccines, developing new cleaning protocols, housing, etc.)
- Legal issues (e.g. hoarding investigation, liability concerns)
- Detect carriers (e.g. low turnover shelter that has recurrent severe disease)
- Individual cat that has not responded to empirical therapy, especially before initiating expensive or risky treatment.

Idexx laboratories now offers a diagnostic PCR panel to look for the five common URI pathogens.

Treatment of feline URI in an animal shelter

Prevention must be the main approach to population URI management. Once the cats become ill, more than half of the battle is lost: even at shelters able to provide treatment, sick cats will suffer through a spell in isolation, crowding and costs will increase as cats are held for treatment, public trust may decrease, and staff time is diverted from preventive efforts and adoptions.

As previously mentioned though, we will not be able to eradicate feline URI from our shelters, thus treatment is an important component of URI management. Having adequate treatment protocols in

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place is essential both for the shelter population as well as the individual cat. While it can be tempting to try a variety of anecdotal treatments or give antibiotics just to be doing *something* about this frustrating disease, treatment should ideally be limited to therapies for which there is a reasonably strong clinical justification. On the flip side; even in shelters with tight resources it may be an option to treat the occasional cat, such as the highly adoptable kitten that you have already invested some time and money in, as staff compliance and community support often improves when sick cats can, at least sometimes, be treated.

While we want to do all we can to speed recovery, it's important to recognize that treatment itself is associated with risks and costs, especially in a shelter. Indiscriminate use of antibiotics can result in several side effects such as compromised normal gastrointestinal flora, leaving cats vulnerable to the many GI pathogens lurking in shelters, or the selecting for antibiotic resistant organisms. With any treatment that involves handling and manipulation of cats, the risk of spreading disease is increased, and treatment itself can be quite stressful for cats and caretakers alike. Overtreatment should therefore be avoided.

References:

UC Davis Koret Shelter Medicine program: www.sheltermedicine.com

Feline URI information sheet:

http://sheltermedicine.com/portal/is_feline_upper_res.shtml#top3

Feline Calicivirus information sheet:

http://sheltermedicine.com/portal/is_vsfcv.shtml

Infectious Disease: Profiles of Common Shelter Diseases information sheet:

http://sheltermedicine.com/portal/is_infectious_diseases.shtml#top3