

Feline URI: the avoidable shelter disease.

Erin Doyle, DVM, DABVP (Shelter Medicine Practice)

Feline upper respiratory infections (URI) are a very common concern for shelter cats and have been shown to be the most common infectious disease concern in relocated cats¹. However, shelter-acquired URI is a preventable disease primarily through implementation of effective stress reduction and population management strategies.

Feline URI is primarily viral in etiology, with two viral pathogens, feline herpesvirus (FHV) and feline calicivirus (FCV), causing most clinical infections. Primary bacterial pathogens including *Bordetella bronchiseptica*, *Chlamydia felis*, and *Mycoplasma felis* also contribute to URI infections in shelter cats. Secondary bacterial infections are also possible due to disruption of normal protective mechanisms by viral agents. However, the prevalence of viral URI is an important factor to help direct management strategies both for treatment and prevention.

Feline herpesvirus is the most prevalent respiratory pathogen in clinically affected cats particularly in a short-term sheltering environment². Because of the propensity of FHV to cause latent infections, cats with clinical URI secondary to FHV infection can be experiencing either a primary infection (typically kittens) or recrudescence infection. FHV recrudescence is commonly triggered by stress. As such, the management strategies for prevention of URI is different for juveniles compared to older kittens and adult cats.

Because URI in kittens is often related to an initial viral exposure to either FHV or FCV, the key to preventing URI in kittens is to maximize their immune response and minimize their risk of exposure. A robust immune response is ideally supported by nutrition and maternal care from the queen. If orphaned, it is vital that our care mimic a queen's care as best possible including adequate nutrition and warmth. Routine preventive care is also important to supporting a kitten's overall health and immune function. This includes routine parasite treatment and vaccination. Vaccination against FHV and FCV is part of the core vaccination program for all shelter cats beginning at four weeks of age³. While vaccination will not fully prevent clinical infection, it helps to enhance the immune response and reduce the severity of signs.

In addition to supporting a kitten's ability to successfully fight off infection, it is vital that exposure to infectious disease be minimized for neonates and juveniles. Mitigating this exposure risk is best accomplished using foster care for kittens too young for placement. Kittens old enough for spay-neuter and placement should have their length of stay in the shelter minimized to reduce the risk of disease exposure. While reducing disease exposure overall is critical, in scenarios in which a queen or littermate develops clinical URI, the behavioral risks of isolation typically outweigh the benefit of separation.

Overcrowding in the shelter is a major risk factor for URI that impacts both kittens and adult cats. Prolonged lengths of stay contribute to overcrowding and result in not only increased disease exposure (most applicable to kittens) but also to an increased stress level both for the cats and the animal care staff/volunteers. Like CIRDC in dogs, elevation in feline URI levels in the shelter should prompt an evaluation of population dynamics to identify and address bottle necks in flow through the shelter.

While reducing length of stay is a critical component to mitigating URI risk in the shelter, it is also vital to take measures to reduce feline stress during the cat's shelter stay. Stress reduction efforts should begin at intake by utilizing gentle handling during the intake process, covering transport carriers, and ensuring the intake area remains as quiet as possible with an avoidance of exposure to dogs. Once in the shelter, care should be taken to reduce stress in both the cat's micro and macro environment. Microenvironment efforts should include utilizing an enclosure with adequate space to allow for natural behaviors, provision of a hiding area, enrichment, and a reduction in the disruption to the cage (such as via spot cleaning). Macroenvironmental measures should include preventing exposure to excess noise or chaos, preventing any auditory or visual exposure to dogs, maintenance of a consistent daily routine, and avoidance of movement to new enclosures.

Many of these same stress reduction strategies can be utilized during feline relocation, though the ideal way to reduce URI incidence in relocated cats is to focus on the shelter health of the source and

destination shelters. Thoughtfully planned transport programs can be a valuable tool in achieving reduced lengths of stay and avoiding overcrowding in the source shelter. Equally important is for the destination shelter to remove any unnecessary barriers to placement that might cause a prolonged length of stay and increase the risk of URI.

However, even with effective population management and stress reduction efforts, feline URI will likely occur in the shelter either due to cases identified at intake or due to unexpected population or capacity changes. Cats with active signs of infection should not be relocated particularly if there are any juvenile felines present in the transport vehicle. Whether to isolate clinical URI cats in the shelter will vary based on the severity of clinical signs, facility design and the shelter population. Feline URI is not aerosolized thus making it easier to avoid spread if good fomite control is in place. It is often appropriate to manage cats with URI *in situ* on the adoption floor if measures are taken to reduce spread (i.e. avoid group housing of infected cats, avoid housing cats (particularly kittens) below the affected cat when possible, utilize effective hand hygiene). Ultimately, preventing the spread of disease in the shelter should be balanced with reducing the cat's length of stay. When isolation is necessary due to the severity of clinical signs or the susceptibility of the shelter population, care should be taken to ensure that the isolation area meets the same micro and macroenvironmental parameters described above for feline housing.

URI treatment in foster care is an ideal alternative management strategy when possible. Foster treatment avoids any risk of transmission to the shelter population and avoids prolonging the cat's stay in the shelter environment. Management in foster care also further reduces environmental stress which in turn can facilitate recovery.

Utilization of foster care can be particularly useful, if foster capacity allows, in situations of large-scale feline intakes. URI is very common in cats from hoarding or other overcrowding situations, with FCV more prevalent in this population. Compounding the concern, in many of these cases placement may be hindered by legal holds. As such, treatment of these felines in foster care whenever possible can be a very useful tool to avoid URI transmission as well as maintain normal population flow and housing for the remainder of the shelter's feline population. Foster care for these cats has the added benefit of behavioral monitoring and rehabilitation when needed in these often under-socialized cats.

Stress reduction, mindfulness of disease transmission risks, and supportive care are the cornerstones of URI treatment. However, in some cases antibiotic therapy is indicated. Juveniles often benefit from antibiotic therapy to reduce clinical signs related to secondary bacterial infections and more quickly restore any impairment in appetite. More conservative use of antibiotic treatment is appropriate for adult cats with clinical URI. Antibiotic administration should be reserved for more severe cases or cats with other underlying concerns contributing to the likelihood of bacterial infection. However, the benefits of any treatment should always be weighed against any stress related to administration of the treatment and any extension of the cat's shelter stay. Ultimately, if a shelter has many cats with shelter-acquired URI that is challenging to treat, an underlying cause related to prolonged lengths of stay and/or shelter stressors should be explored and addressed.

References:

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