How to stop the snotty noses: Preventing feline upper respiratory infections

Staci Cannon, DVM, MPH, DACVPM, DABVP (Shelter Medicine Practice)
Why is URI so hard to control?

- Multiple pathogens
- Chronic carriers
- Incomplete protection from vaccines
- Inadequate rapid diagnostics
- Easily spread
- Disinfection problems
- Limited specific treatment

Impact of stress
Respiratory infections

• Complex of viral and bacterial agents
• Highly infectious among group-housed cats
• Rarely fatal in private practice
• Euthanasia of affected cats in shelters
• Source of complaints from adopters

Huge welfare concern
Is URI unavoidable?

• No!
• Having fewer than 5% of cats develop URI during shelter care is an achievable goal.
• If more than 10% of your shelter cats get sick with respiratory infections…

You can prevent URI through better management and protocols!
Prevention Strategies

- Vaccinate on Intake
- Minimize Length of Stay
- Maximize air quality
- Spot clean, Sanitation
- Proper housing, Enrichment
First moments
Environmental Stress for Cats

- Transport
- Handling
- Noises
- Smells
- Other cats
- Dogs
- Exposure

- Irregular schedules
- Temperature changes
- Overcrowding
- Isolation
- Anything unfamiliar or unpredictable
Impact of Length of Stay

Probability of URTD by Time in Shelter

All Cats

Dinnage, JFMS, 2009
Infectious agents

- Viruses (80-90%)
  - Herpesvirus (FHV-1)
  - Calicivirus (FCV)
- Bacteria
  - Chlamydia felis
  - Mycoplasma spp
  - Bordetella bronchiseptica
  - Strep zoo, Strep canis, and E. coli
- Secondary invaders
Transmission

• Ocular, nasal, oral secretions
• Direct, close contact
• FOMITES
• Not aerosol
  • Sneezed droplets only travel 1-2m
• Incubation period = 1-6 days
Feline Herpesvirus-1 (FHV-1)

- Easy to disinfect
- Latent infection persists in 80-90% recovered cats
- Shedding occurs with or without clinical signs
- Fever, lethargy, anorexia, nasal/ocular discharge, sneezing, nasal congestion, epithelial necrosis, turbinate osteolysis
How to give a cat herpes
Feline calicivirus (FCV)

- More difficult to disinfect
- Variation in strains and clinical signs
  - Fever, sneezing, oculonasal discharge
  - Oral ulceration, stomatitis
  - Lameness
- Carrier state is possible, infected cats can shed post-recovery
<table>
<thead>
<tr>
<th><strong>Bordetella bronchiseptica</strong></th>
<th><strong>Chlamydia felis</strong></th>
<th><strong>Mycoplasma spp.</strong></th>
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</thead>
<tbody>
<tr>
<td>• Paralyzes mucociliary apparatus</td>
<td>• Conjunctivitis</td>
<td>• Commensal organism</td>
</tr>
<tr>
<td>• Classic URI signs</td>
<td>• Blepharospasm</td>
<td>• Primary vs. secondary pathogen?</td>
</tr>
<tr>
<td>• Coughing</td>
<td>• Chemosis</td>
<td>• Recovered from normal cats and cats with conjunctivitis, URI signs</td>
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<tr>
<td>• Pneumonia, death in kittens</td>
<td>• Ocular discharge</td>
<td></td>
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<tr>
<td></td>
<td>• Unilateral → bilateral</td>
<td></td>
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<td></td>
<td>• Typically cats &lt;1 year of age</td>
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</tbody>
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Diagnostics

- Empirical treatment is common
- Invest in diagnostic testing when:
  - URI cases increase above baseline
  - Explosive spread in short time period
  - Severe clinical disease, death
  - Increase in community complaints of illness
  - Legal investigations, documentation
- Pharyngeal + conjunctival swabs for PCR
- Test at least 5-10 acutely infected cats
- Bacterial culture, necropsy
Treatment

• Supportive care
  • Fluid therapy
  • Nutritional support
  • Pain management
  • Keep face clean
  • Eye lubricants

• Antimicrobial therapy
  • Judicious use!
  • Doxycycline is typically treatment of choice

• Consider foster care
Segregate symptomatic cats

- Reduces infectious dose
- Biosecurity
- In-cage Isolation
  - Signage
  - Staff/Volunteer Training
  - Prevents stress of movement
- Foster homes
- Post-URI ward?
Prevention Strategies

- Vaccinate on Intake
- Healthy Felines
  - Proper housing, Enrichment
  - Maximize air quality
  - Minimize Length of Stay
  - Spot clean, Sanitation
Vaccination: FHV and FCV

- Efficacy: Moderate
  - Does not prevent infection or carrier state
- SC MLV FVRCP starting at 4-6 weeks, given at intake
- Revaccinate kittens every 2 weeks until 20 weeks of age
Intranasal and *Bordetella*

- Intranasal (IN) MLV FVRC and FVRCP are available
- Stimulate non-specific immunity?
- Earlier onset of protection?
- Can cause clinical signs
- Varied reports from shelters regarding efficacy
- Track impact on URI

- MLV IN *Bordetella*
- Noncore - Only recommended if documented cases
What about Lysine?

- Recent studies conducted in animal shelters showed no benefit of lysine supplementation for preventing URI
- Two studies documented more severe URI in supplemented cats
Prevention Strategies

- Vaccinate on Intake
- Minimize Length of Stay
- Healthy Felines
- Proper housing, Enrichment
- Maximize air quality
- Spot clean, Sanitation
Minimize length of stay

• Length of stay is a significant risk factor for developing URI
• Illness further increases length of stay
• Eliminate bottle necks!
  • Quarantine?
  • Open selection
  • Fast tracking
  • Coordinate foster returns
  • Timing of spay/neuter
Prevention Strategies

Healthy Felines

- Vaccinate on Intake
- Minimize Length of Stay
- Proper housing, Enrichment
- Maximize air quality
- Spot clean, Sanitation
Disinfection

Remember common use areas! Intake processing, vehicles, carriers, scales, clinic areas
What is the cause of the lesion?

- calici
- quaternary ammonium toxicity
- herpes
Spot cleaning

- Cleaning vs. Stress Reduction
- Minimize moves
- Bedding, toys stay with cat
- Minimize aerosolization of chemicals
- Refresh litter, food, and water

Goal is to keep space pleasant for the cat with minimal disruption!
Air quality

• Increase fresh air : animal ratio
• Air quality at the cat’s nose
• Minimize irritants, odors
  • Spot clean, litter dust
• Outdoor access

We can control animal density!
Prevention Strategies

Healthy Felines

Vaccinate on Intake

Minimize Length of Stay

Proper housing, Enrichment

Maximize air quality

Spot clean, Sanitation
Proper housing

- Provide for physical and emotional needs
- Comfortable resting place
- Hiding place
- Enrichment
A place to hide

- Cardboard boxes, plastic bins, feral cat dens, paper bags, carriers
- Draped towel
- Elevated beds
- Hide, Perch & Go

The single most important method to reduce stress is allow the cat to hide.
Group housing

- Limit group room turnover
- Monitor for compatibility
- Plenty of resources
- Consider vertical space
- Many small groups is preferable to a few large groups

- **Avoid overcrowding!**

18 square feet PER CAT is recommended
Porthole rehab
**Refurbished Cage**

**DOUBLE COMPARTMENT CAGE LAYOUT** for Alachua County Animal Services

- **PARTIAL CAGE COVER:** for first 24 hours or with fearful cats
- **Food & Water:** mounted on cage door
- **Soft bed:** should be added to the top of the raised bed for comfort. **Draped cloth** partially over raised bed provides a hiding spot underneath.
- **Scratch Pad:** placed high on door so cats stretch & scratch
- **Porthole:** open except when cleaning
- **Litter Box:**
- **Mat/Towel:**
- **Draped Cloth:**
- **TOYS:** for kitty fun!
Feline enrichment

- Enriched housing
- Aerobic exercise
- Social companionship
- Mental stimulation
- Play
- Scratching

- Sensory enrichment
  - Visual, olfactory, auditory, pheromone
- Feeding enrichment
- Training programs
  - Clicker training
  - Grooming

Enrichment should be given the same significance as other components of animal care.
Take home points

• Shelters can decrease incidence of URI through:
  • Effective vaccination and sanitation protocols
  • Minimizing stress and length of stay
  • Ensuring proper housing with a place to hide

The same strategies to prevent URI will also drastically improve feline welfare in the shelter!
Questions?

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