

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?

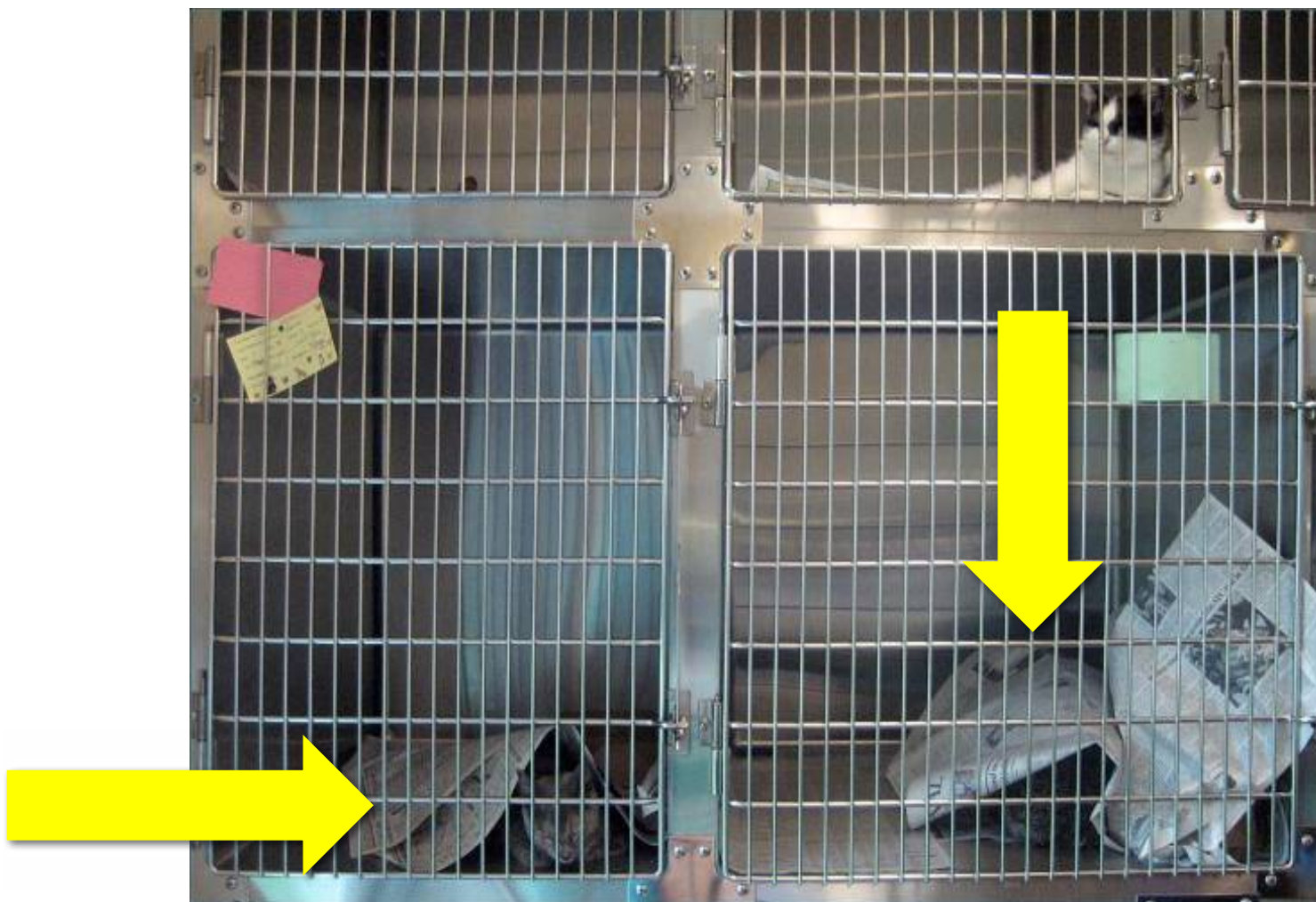
- No!
- Having fewer than 5% of cats develop URI during shelter care is an achievable goal.
- If more than 10% of your shelter cats get sick with respiratory infections...

You can prevent URI through better management and protocols!

Prevention Strategies



First moments





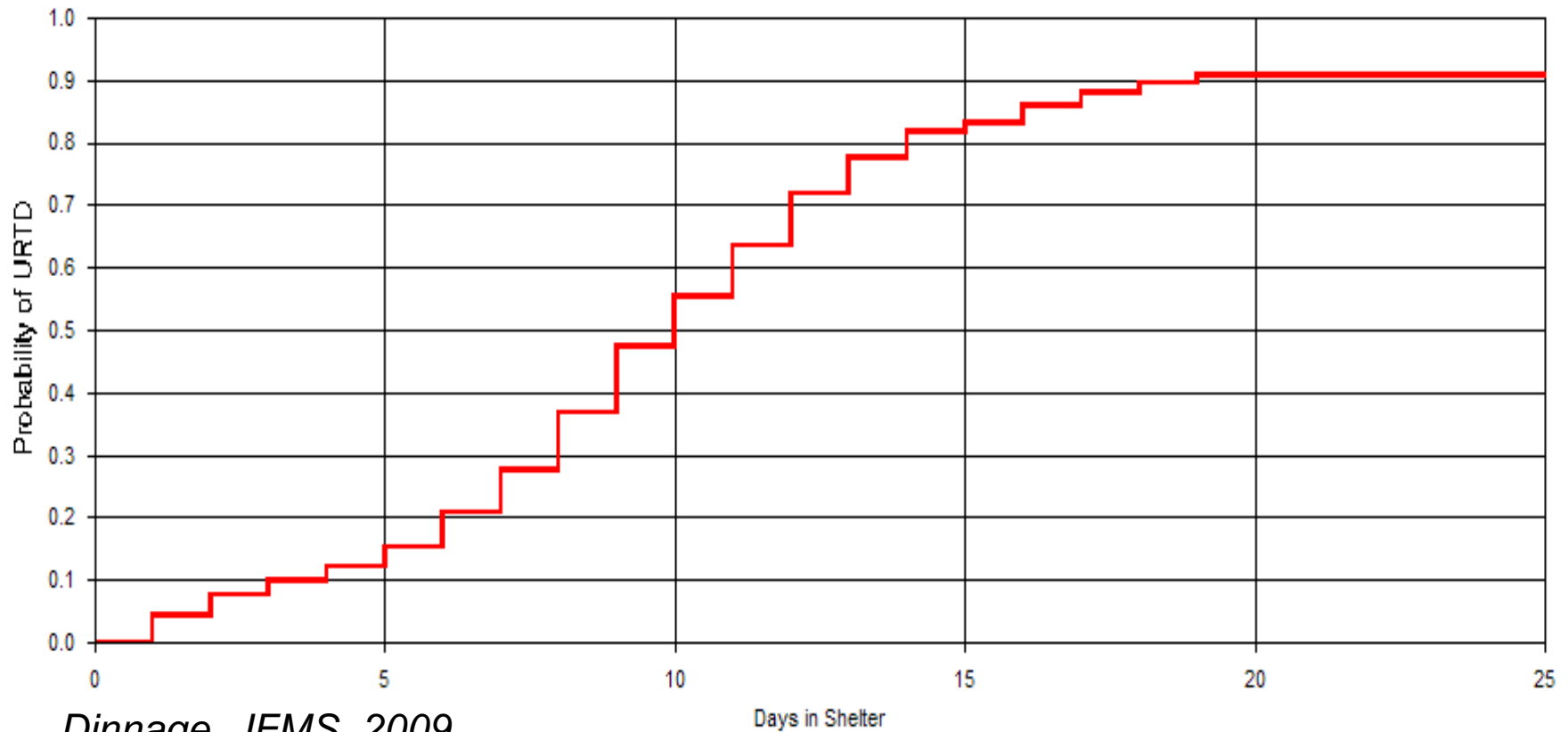
Environmental Stress for Cats

- 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

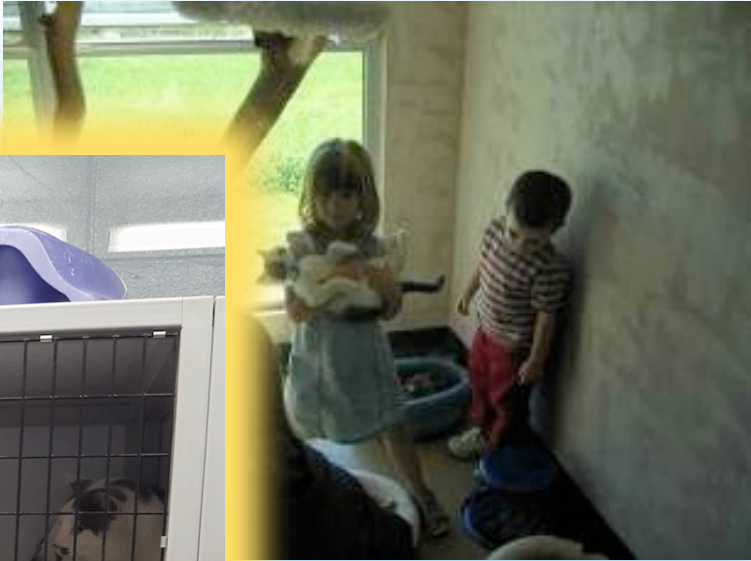


Feline Herpesvirus-1 (FHV-1)

- 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



Bordetella bronchiseptica

- Paralyzes mucociliary apparatus
- Classic URI signs
- Coughing
- Pneumonia, death in kittens

Chlamydia felis

- Conjunctivitis
- Blepharospasm
- Chemosis
- Ocular discharge
- Unilateral → bilateral
- Typically cats <1 year of age

Mycoplasma spp.

- Commensal organism
- Primary vs. secondary pathogen?
- Recovered from normal cats and cats with conjunctivitis, URI signs

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



Fig. 3. Collecting a conjunctival swab; the sample must contain enough cells for PCR diagnosis. Courtesy of The Feline Centre, Langford Vets, University of Bristol, UK

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

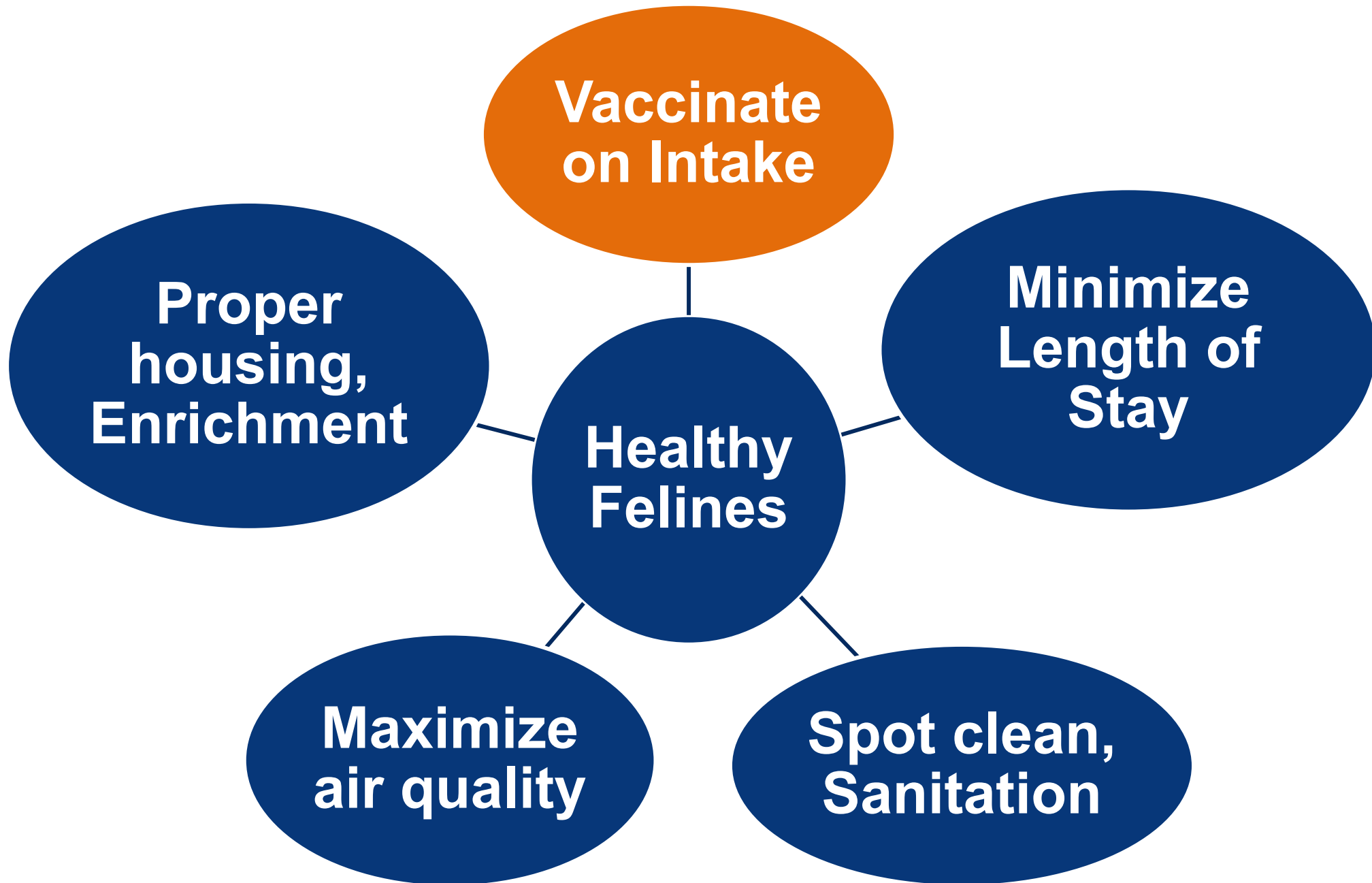


Segregate symptomatic cats

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



Prevention Strategies



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



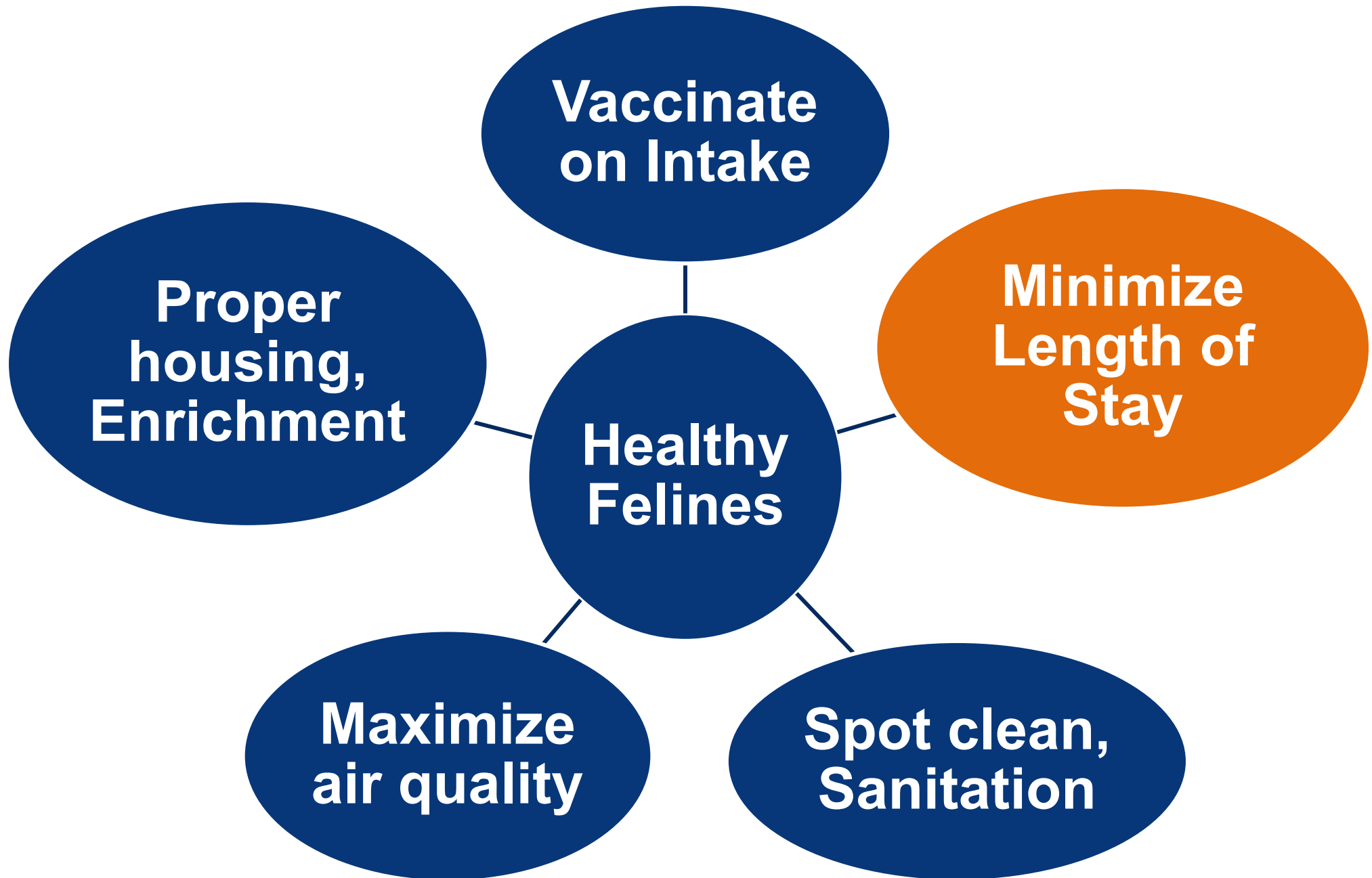
What about Lysine?



- 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



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



Disinfection

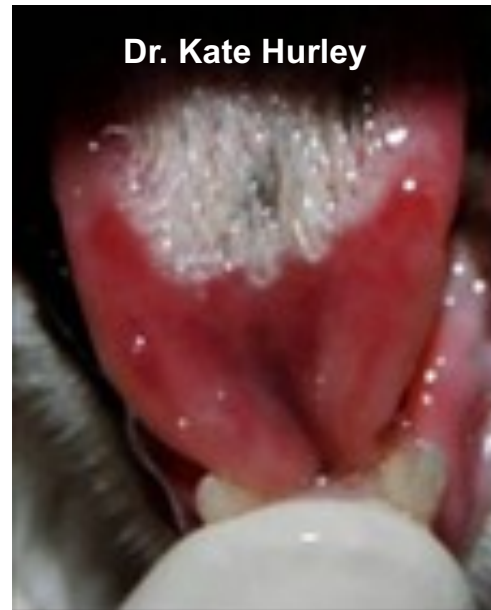
Remember common use areas! Intake processing, vehicles, carriers, scales, clinic areas



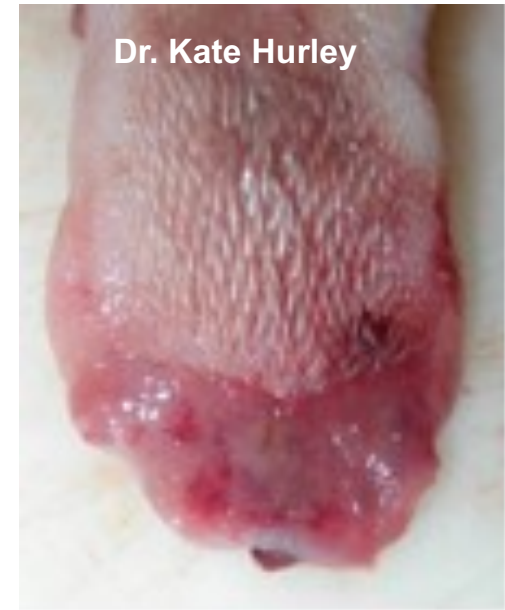
What is the cause of the lesion?



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

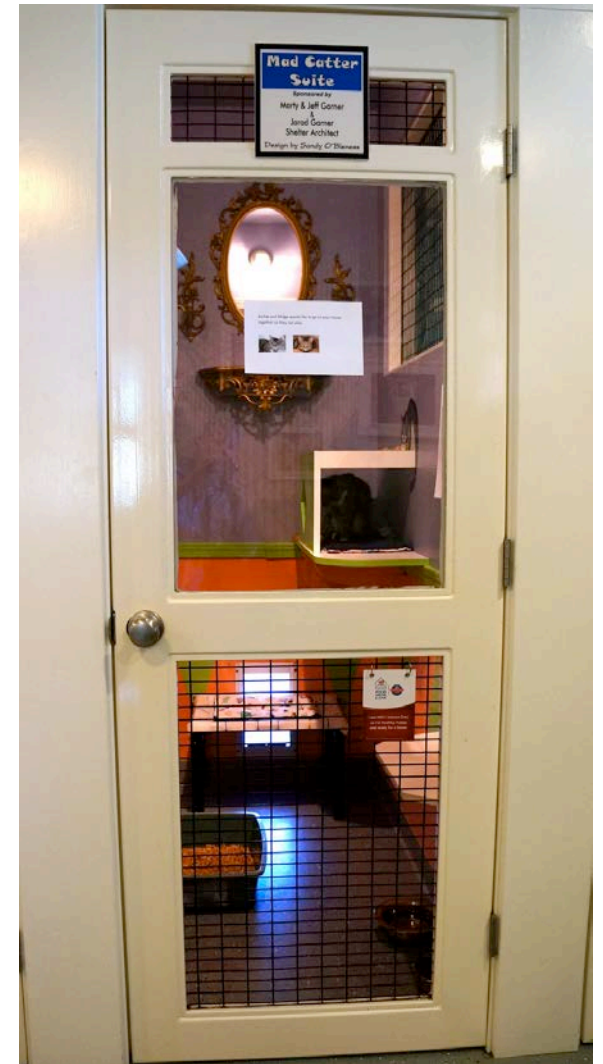


Goal is to keep space pleasant for the cat with minimal disruption!

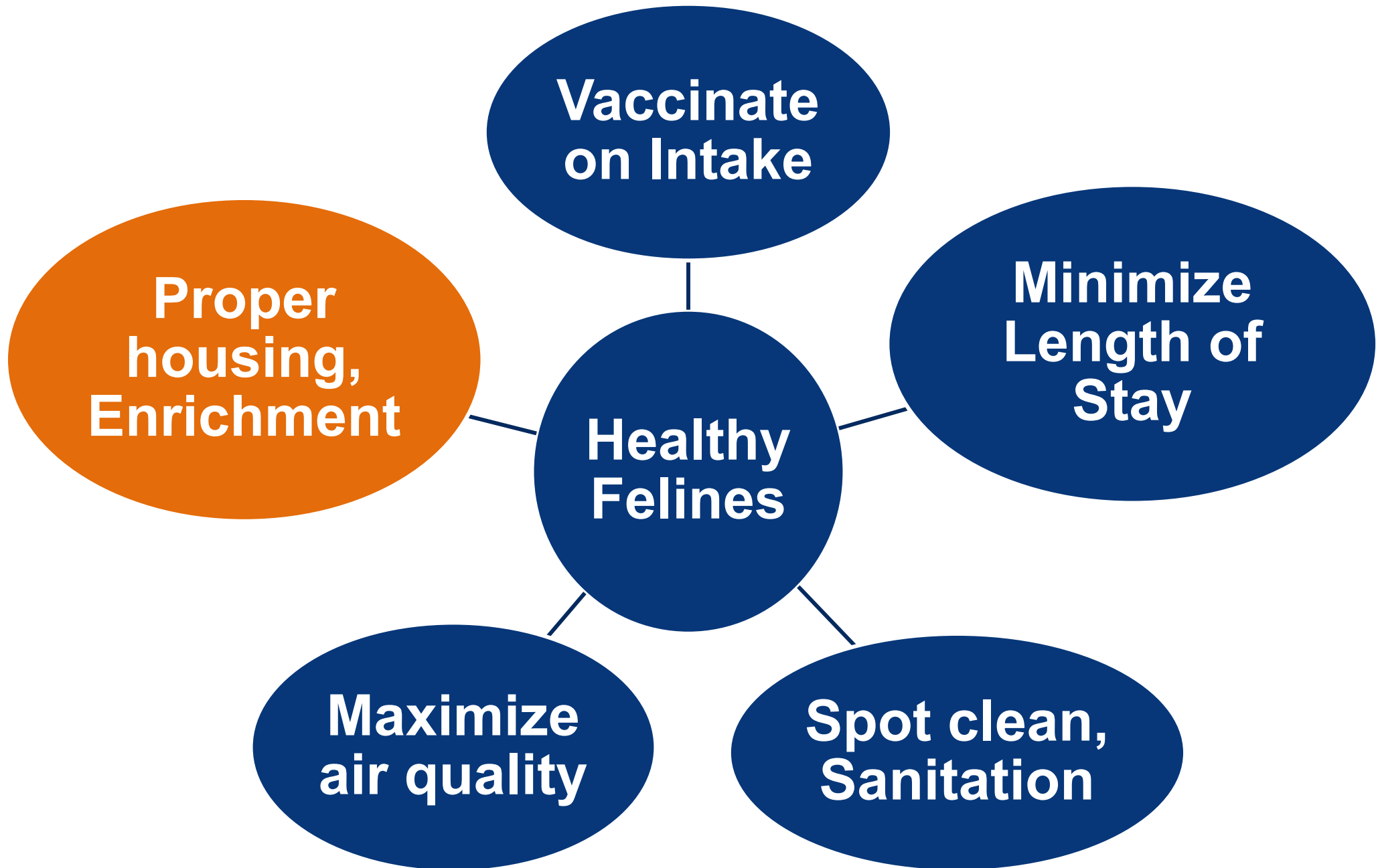
Air quality

- 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!**

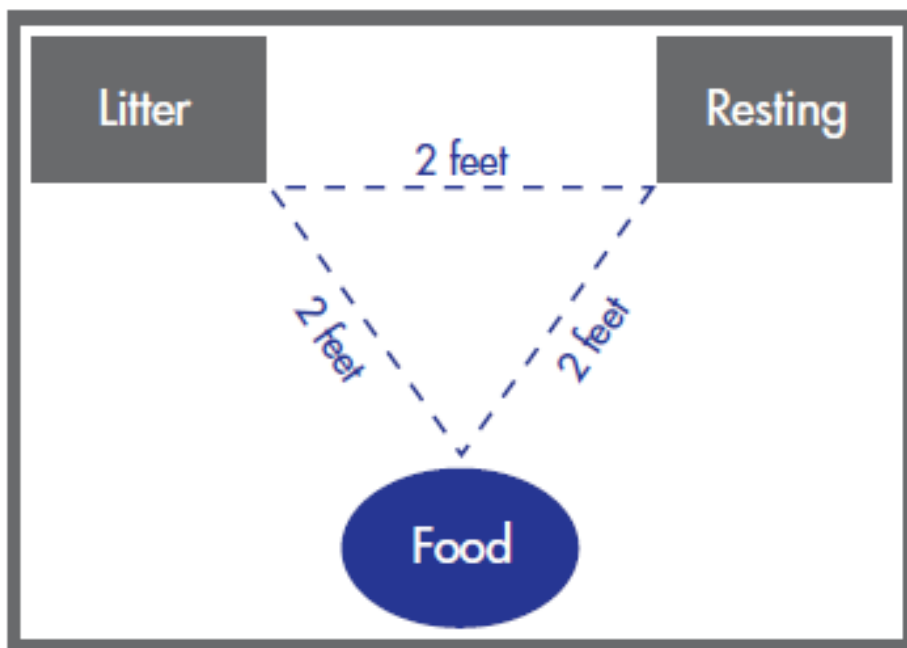


Prevention Strategies



Proper housing

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





Animal ID: 11270156
My Name is: MYA
I am a: DSH Tuxedo
I have been available for adoption since: 9/5
Intake Type: Stray/Owner Surrender/Transfer
I got along with: cats, dogs, children
I love: Salmon Canned Food
75.00

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**







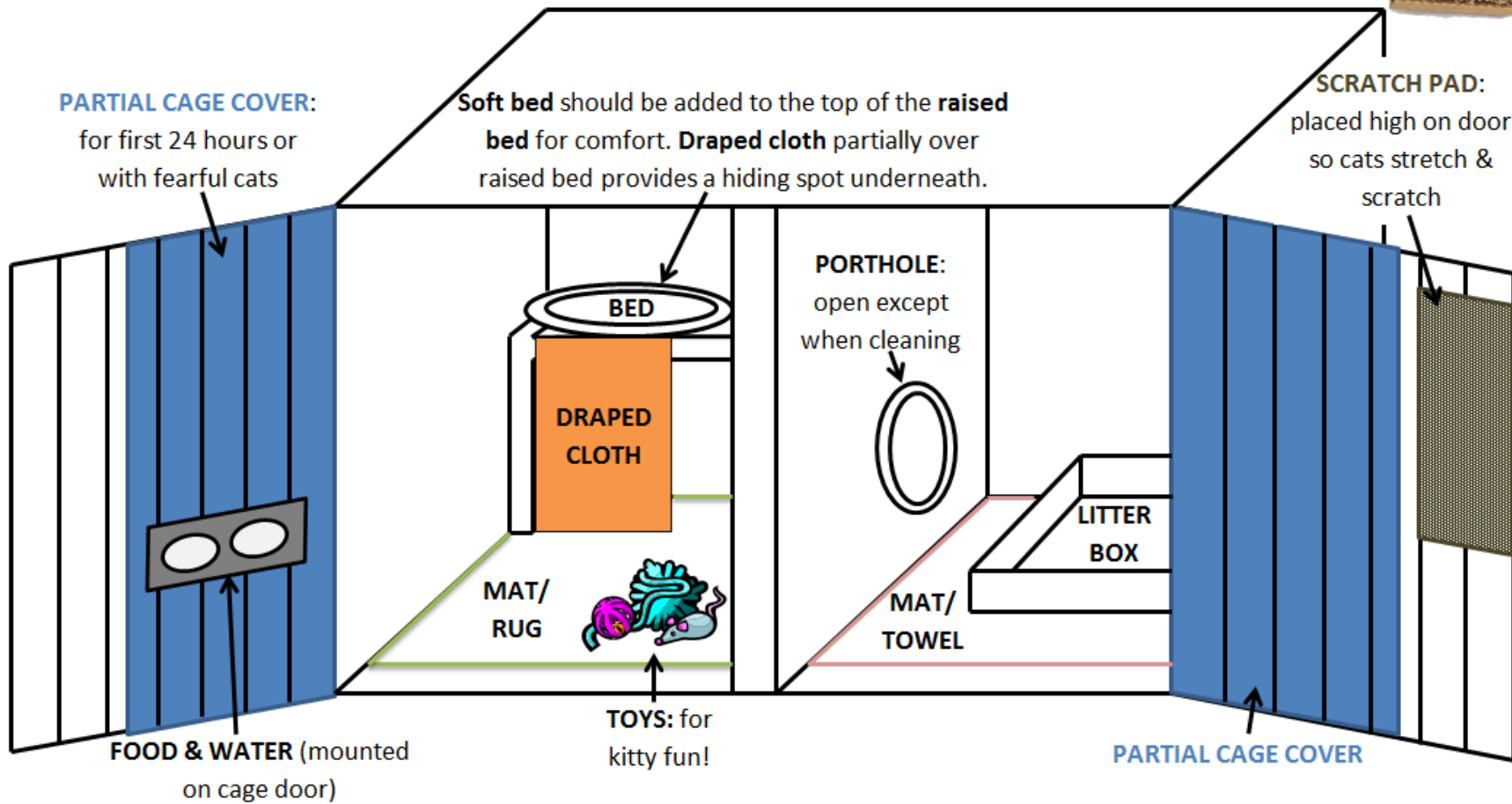
Porthole rehab



Refurbished Cage



DOUBLE COMPARTMENT CAGE LAYOUT for Alachua County Animal Services



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?

Staci.Cannon@nashville.gov

Staci Cannon, DVM, MPH, DACVPM, DABVP
(Shelter Medicine Practice)

Metro Animal Care and Control, Nashville, TN

615-862-7928